the ROYAL COMMISSION on the NORTHERN ENVIRONMENT

THE ONAKAWANA PROJECT

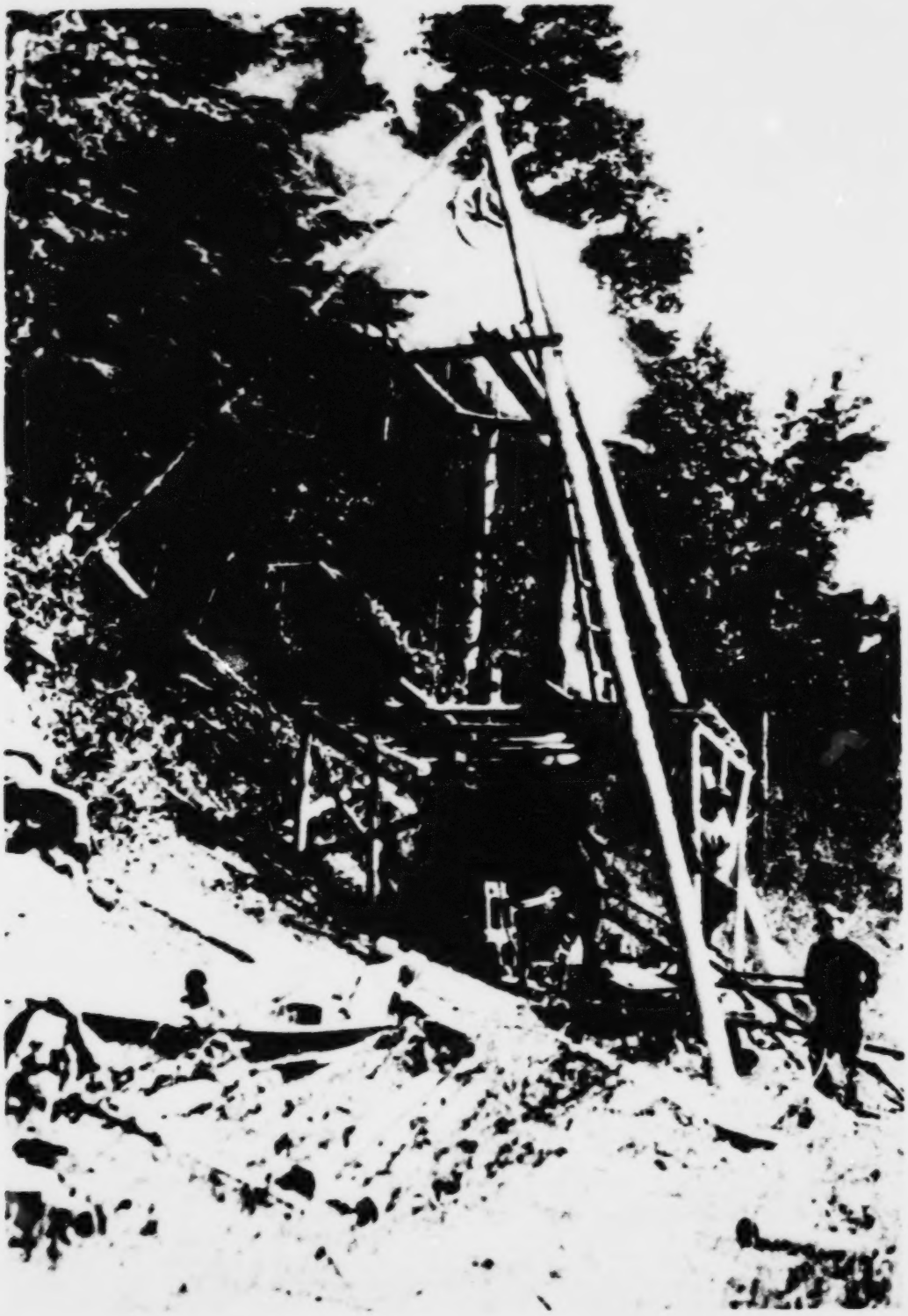
An Example of the
Environmental Assessment Process
in Ontario

Royal Commission on the Northern Environment
1983

Faye Rodgers carried out the research and wrote the report; Ruth Burkholder assembled much of the basic background information.

The co-operation of the Ministries of the Environment, Energy and Natural Resources has been invaluable in providing the Commission's staff with assistance and information. Particular thanks are extended to the staffs of Onakawana Development Limited and Ontario Hydro for sharing their views and providing documentation of the events that occurred. Special thanks must, of course, go to the people who gave freely of their time and energy to fulfill their obligations as citizens concerned with northern development and protection of the northern environment.

The Royal Commission on the Northern Environment actively solicits public response and commentary on all aspects of its research and public program.



Government drilling rig at Onakawana in 1932. (Photograph courtesy of the Mines Library, Ministry of Natural Resources.)

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PREFACE

Background

The mandate of the Royal Commission on the Northern Environment is a broad one, directing me to make recommendations to the Government of Ontario concerning the manner in which major development takes place in Ontario North of 50° and how decisions on such development are reached. In order to formulate effective recommendations, I have undertaken a research and public participation program with two main objectives. The first is to explore ways in which the people of the north may become involved in decision-making on issues that affect their lives. The second is to find ways of ensuring that development, when it occurs, proceeds in an orderly fashion, working in concert with and not at the expense of the environment.

The Commission's research program has undertaken case studies of representative major northern enterprises in order to examine the relationships between resource development initiatives, government roles, and decision-making, with particular reference to the land-use planning and environmental assessment procedures. One study, The Road to Detour Lake, has been completed and is available to the public. The second, still in progress, is an inquiry into the planning activities of the Ministry of Natural Resources in the West Patricia area and districts elsewhere across Ontario North of 50°. A third, an investigation of the Onakawana project, is the subject of this report.

Since its creation in 1977, the Commission has been interested in the Onakawana project. At that time, Onakawana was one of three potential major developments in Ontario North of 50° and considerable study had already been undertaken. The Commission monitored the evolution of the project through its various stages: signing of a lease between Onakawana Development Limited and the Ministry of Natural Resources, designation of the private sector project under the Environmental Assessment Act, inclusion of Ontario Hydro as a co-proponent, studies toward an environmental assessment, a no-go decision based on economic feasibility factors, termination of the environmental assessment process, and current studies under way by Onakawana Development Limited and the federal and provincial governments.

Objectives of the Study

The Environmental Assessment Act has been both lauded as progressive environmental legislation and decried as inadequate to meet the need for protection of the fragile northern environment. Strengths and weaknesses of the Act and the assessment process stemming from it are becoming increasingly apparent as the legislation is beginning to acquire an extensive history of application for many different kinds of project. This report constitutes an evaluation of one application of the Act; it examines the environmental assessment process as it took place for the Onakawana project in order to identify problems that occurred in the Act's implementation in this case, and to consider how those problems affected the final outcome.

Problems in the Application of the Environmental Assessment Act

Although the co-proponents invested considerable time and energy in carrying out an environmental assessment at Onakawana, the process was never completed because the project itself was aborted. This study has exposed two main shortcomings in the co-proponents' interpretation of what an environmental assessment encompasses. First, they treated consideration of economic feasibility as something apart from the process. Although they had differing objectives, they were able to assess the environment and the possible consequences of development on it without apparent disagreement. However, they were unable to reconcile their independent economic evaluations. Consideration of economic feasibility in the environmental assessment would have been consistent with the process established by the Act; that the co-proponents did not do so cannot be attributed to a deficiency in the Act itself. Second, in their treatment of alternatives, the co-proponents focussed their attention almost exclusively on a single alternative, use of the lignite resource at an on-site generating station. They did not adequately implement the legislation's specific direction that an environmental assessment must comparatively evaluate alternatives to an undertaking as a prelude to project selection and justification. Other uses of the lignite, such as in its raw or briquetted form or converted to methanol, were given scant consideration even though one of the co-proponents is now investigating those very alternatives with other government agencies.

And what of the Ministry of the Environment involvement? Surely, in the interests of more effective implementation of the Act, the Ministry could have ensured, in the first case, that economic feasibility factors would be weighed as part of the environmental assessment and not separately. With respect to the second point, the Ministry could have advised the co-proponents of the necessity for a sufficient evaluation of the alternatives to the undertaking and insisted on their closer adherence to the letter of the law. I regard this particular provision of the Act as one of its major strengths.

J.E.J. Fahlgren
Chairman, Royal Commission
on the Northern Environment

THE ONAKAWANA PROJECT

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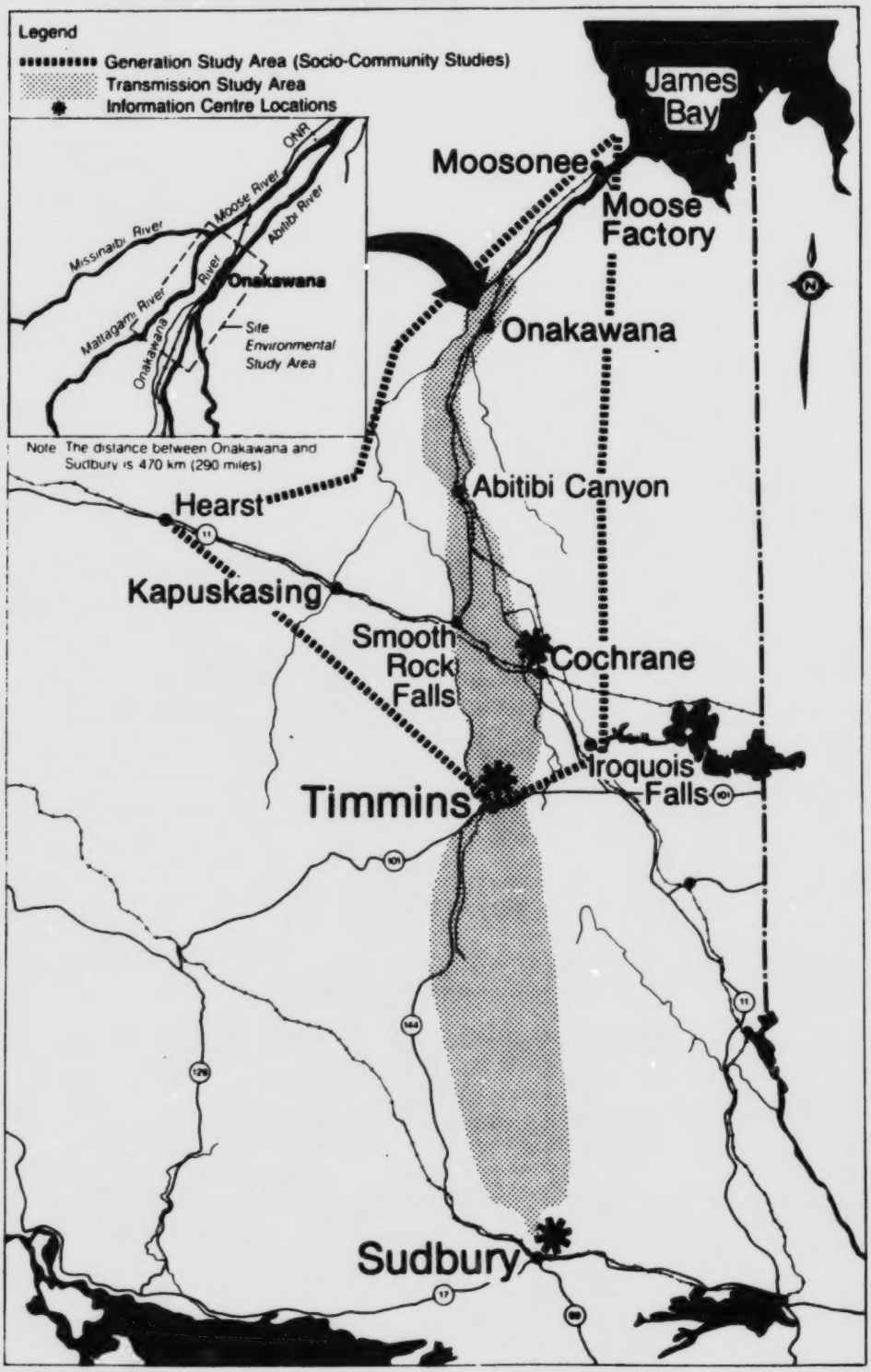

Source: Ontario Hydro

INTRODUCTION

The Royal Commission on the Northern Environment (RCNE) was established on July 13, 1977 by Order-in-Council 1900-77 of the Ontario Government. The formal terms of reference include responsibility for the following:

> "1. to inquire into any beneficial and adverse effects on the environment...for the people of Ontario of any public or private enterprise, which, in the opinion of the commission, is a major enterprise north or generally north of the 50th parallel of north latitude....
>
> 2. to inquire into methods that should be used in the future to assess, evaluate and make decisions concerning the effects on the environment of such major enterprises;
>
> 3. to investigate the feasibility and desirability of alternative undertakings north or generally north of the 50th parallel of north latitude, for the benefit of the environment....
>
> 4. to report and make such recommendations to the Minister of the Environment from time to time and as expeditiously as possible with respect to the subject matter of the inquiry as the commission deems necessary and desirable to carry out the purposes of The Environmental Assessment Act, 1975."

In order to fulfill its mandate, the Commission has undertaken a number of work projects, one of them the subject of this paper: the Onakawana project and its relationship with the Environmental Assessment Act.

During the preliminary hearings in 1977-1978, individuals and organizations were asked to bring their concerns to the attention of the Commission. One of those concerns was the proposed development of a

lignite deposit in the James Bay Lowlands south of Moosonee. Onakawana Development Limited (ODL), a coal-mining firm, was then in possession of an exploratory licence of occupation with approval in principle for a lease granted by the Ontario Cabinet. The company had agreed that the project should be subject to the requirements of the Environmental Assessment Act.

ODL was requested by the RCNE to make a submission to the preliminary hearings and did so in Timmins on November 23, 1977. ODL foresaw two ways in which the lignite could be used: first, as fuel for a mine-mouth thermal generating station; and second, processed as fuel for industrial and local power needs. ODL predicted that the project would benefit Ontario generally by decreasing dependence on foreign energy resources (saving the province about $2 billion in foreign exchange during the 30-year lifetime of the project) and the north more specifically by increasing employment significantly in both the construction and operational periods. ODL also predicted that 4.5 spin-off jobs would be created for each job in a surface mining operation, a figure that appears optimistic in light of studies conducted since then. The issues of native participation and environmental effects were also presented in a rosy light. While ODL had agreed to be designated under the Environmental Assessment Act, and intended to comply fully with the requirements of the Act, the company had one caveat:

> "The coal mining industry cannot live with shifting or indefinite standards or conditions ... changing the rules of the game after the match is in progress, or equally disturbing, prolonged indecision on the rules before the match can begin. . . We suggest that the environmental approval process be as decisive and expeditious as possible. A single government agency, a single, well-established procedure, and one jurisdiction for submissions, reports and hearings and approvals would be of great benefit."27

Ontario Hydro had agreed to study the feasibility of a mine-mouth generating station to be fuelled by the lignite and briefly touched on its plans concerning the Onakawana project at the preliminary hearings of the Commission:

> "Currently Ontario Hydro's long-range plans do not specifically include the development of the Onakawana lignite deposits . . . However, feasibility studies of developing the lignite deposits are in progress . . . Where these projects are proven economic and desirable to meet system demands they would be included in long-range generation plans and fully discussed with the public."[36]

On questioning by RCNE counsel, Ontario Hydro reflected its less than total committment to the project:

> "We have to look at Onakawana as just one potential source of energy for meeting the needs of the province and it is, I think, far too early to suggest a possible date for recommending that it be proceeded with. It has to be looked at in the context of the other sources of energy that are available."[36]

Other speakers at the preliminary hearings expressed their views on development of the Onakawana lignite, iterating the same major concerns that would be repeated in later meetings, both with the major actors and the RCNE: local employment, native employment, job training and possible damage to the physical and social environments. In general, the northern communities were excited at the prospect of an economic stimulus while environmental groups and native organizations were considerably less sure that development would prove beneficial.

Opinions expressed at the hearings regarding the Environmental Assessment Act reflected uncertainty as to how the legislation would work in practice, how adequate it would be in protecting the environment, and how efficacious it would be in considering the concerns of the public most directly involved in any development scheme--the local residents.

In its Interim Report of April 4, 1978 based on what had been learned at the hearings, the Commission had this to say,

> "Concerns have been voiced about the application of the Environmental Assessment Act to the Onakawana project...I believe that the assessment of the Onakawana project under the Environmental Assessment Act should proceed, but that the lack of experience in operating under its provisions should be recognized. I am convinced that the process envisaged by the Act is essentially a good one...The primary objective is to help insure that the social, economic and cultural concerns of local affected residents are fairly considered. They, and the residents of Ontario, should benefit from the development if it does proceed, to the maximum degree possible."53

In later visits to communities in northeastern Ontario, both north and south of the 50th parallel, Commissioner Fahlgren continued to receive questions about the Onakawana project: What benefits could it be expected to provide? And who would pay the environmental costs?

The Environmental Assessment Act was established to answer these kinds of questions but it had been untried in large northern developments, in projects with public and private co-proponents, or in areas with two widely differing cultural groups. Commission staff monitored the planning process to see how it would work in this case. Here is what was learned.

BACKGROUND TO THE VENTURE

THE LIGNITE DEPOSIT

Ontario's only known coal deposits are located in the James Bay Lowlands of northern Ontario. Onakawana, where lignite was first discovered, is located alongside the Ontario Northland Railway tracks, approximately 100 kilometres south of Moosonee and 200 kilometres north of Cochrane. The closest community is Moose River Crossing, a settlement of about 90 people, mainly native, 25 kilometres north on the rail line.

Onakawana lignite is a low-quality coal with a high moisture content (49.8 per cent), and a calorific value of 10.97 MJ/kg (4,714 Btu/lb). Its ash content is fairly low at 9.9 per cent and its sulphur content low at 0.5 per cent.

The coal field covers an area of approximately 44 square kilometres between the Abitibi and Mattagami Rivers, and is divided into three areas, the Main, East and Portage fields. Two main seams are present, the lower one covering the whole mining area; the upper one, having been extensively eroded, is present discontinuously. Both seams vary widely in thickness between one and 18 metres, averaging about five metres, with overburden thickness varying between 18 and 49 metres. The amount of lignite has been estimated at 180 million tonnes.

EARLY USE AND EVALUATION

Lignite's presence has been known at Onakawana since at least the 17th century when employees of the Hudson's Bay Company used it to fire their blacksmiths' forges. It was first officially recorded in 1871 by the Geological Survey of Canada. Through the years there have been a number of attempts to utilize the resource but so far none have come to fruition. In the late 1920's and early 1930's the Ontario Department of Mines did exploratory drilling to determine the extent of the deposit and sampling to determine the lignite's potential as a fuel. In 1933, the Ontario Research Foundation conducted studies on the technology available to process lignite, compared it with then-current fuels (Nova Scotia and American bituminous coals, imported anthracite and electricity) and considered where it might be used. The Foundation concluded that while lignite could be dried and briquetted successfully with the technology available, boilers would need to be modified, adding to the difficulty of finding customers. Potential markets discussed were: the steam locomotives of the Timiskaming and Northern

Ontario Railway (now the Ontario Northland Railway); paper mills at Iroquois Falls, Smooth Rock Falls and Kapuskasing; Noranda Mines' smelter; gold mines at Timmins and Kirkland Lake; and miscellaneous public buildings such as schools and court-houses. Lack of substantial markets and the generally poor economic conditions of the time precluded development. In the early 1940's, work was again resumed and the lignite tested as a fuel for steam locomotives and heating boilers. Although results indicated that the lignite was usable in this fashion, lack of substantial markets made development economically unfeasible.

In 1966, the Ontario Economic Council proposed to private industry that a heavy water plant be constructed to supply 360 tonnes of deuterium oxide for use in nuclear plants, but the proposal was not accepted. In 1967 the private sector entered the picture when Alberta Coal Limited was issued an exploratory licence of occupation. In 1968-69, Alberta Coal Ltd. evaluated the possibility of producing heavy water but was unsuccessful in interesting Ontario Hydro in its purchase. In 1972, Manalta Coal Ltd. took over management of Alberta Coal operations and incorporated a subsidiary, Onakawana Development Limited (ODL), to promote the development of the lignite deposit.

In 1972 the Ontario Research Foundation conducted a study to examine the feasibility of gasifying lignite for transmission to southern Ontario via pipeline. It concluded that,

> "The overall feasibilility of gasifying lignite to a pipeline quality gas (950 BTU/ft3) has been demonstrated. Problems exist with some stages of the operation but these are essentially problems of engineering design."11

The study compared gas production and electricity generation with the following conclusions:

> "Use of the deposits [to fuel a 1000 MW thermal power generating facility] has the advantage that it can be started immediately; a gasification plant could not realistically be in operation until 1980.
>
> "The cost of electrical transmission is about 5 to 10 times that for transporting gas. The loss in energy in transmission is also much greater for electricity.

> "...only about 30% of the available energy in the original coal would be delivered to southern Ontario as electricity, compared with 55-75% as synthetic natural gas.
>
> "....the final cost of energy [in Toronto would be] $2.94-$3.24/MM BTU....The cost of synthetic natural gas delivered to Toronto [would be] $1.15-$1.39/MM BTU for a 125 billion BTU/day plant...
>
> "The employment created by a 1000 MW electricity plant would be substantially less than that created by a 250 billion BTU/day gasification plant, and would even be less than that required by a 125 billion BTU/day plant.
>
> "Thus a plant producing synthetic natural gas has the advantages of producing almost twice as much usable energy per ton of lignite mined, and the cost of this energy is half that of the equivalent amount of electric energy. Gas would create much more employment in an under-developed area. On the other hand, an electricity generator can be designed and built immediately, thus developing the area earlier than would be possible for a gasification plant."11

Although the Ontario Research Foundation's findings favoured gasification (at least if time were not an issue), emphasis seemed to be on power plant production. In the Throne Speech of February 1972, the Lieutenant-Governor said,

> "The Government will be proceeding with proposals to develop the lignite deposits at Onakawana in northeastern Ontario, which are capable of supporting a 1,000-megawatt power plant to help meet Ontario's continuing need for increased power."

In the early 1970's public and government attention was being focussed on the possibility of environmental disruptions arising from large-scale developments and on the need for protection. To ensure that

environmental factors were considered, the Provincial Secretary for Resources Development directed that a task force be formed to investigate the environmental effects of development of the deposits to fuel a generating station, to obtain the views of groups concerned with environmental protection, to formulate a work plan for more detailed investigation of significant environmental effects, and to estimate costs for minimizing environmental impacts.

Task Force Onakawana, composed of representatives from the Ministry of the Environment, the Ministry of Natural Resources, Management Board of Cabinet, Ontario Hydro, the Conservation Council of Ontario, and a citizen from the area, made 18 recommendations in January 1973, the main points of which were:

1. Because of time constraints and because economic and engineering studies were not yet available, the investigation was not as complete as it should be and further investigation would be necessary with the developer bearing the costs;

2. Studies should examine alternative uses and environmental impact during the construction, operating and post-operations periods;

3. Regulations leading to minimum deterioration and maximum restoration of the environment should be as rigorously applied as though the area were rich in forest, soil and wildlife resources or near population centres;

4. Costs of restoration and reclamation should be borne by the developer with detailed plans for reclamation filed before commencement of development;

5. If river diversions were found to be necessary, they should be accomplished with minimal degradation of water quality and a view to restoration; water used in processing must be treated before returning it to the streams of the area;

6. The emissions stack should be 500 feet high and include electrostatic precipitators;

7. The developer should provide local employment and training programs to upgrade the work-related skills of residents of the area;

8. No new townsite should be created;

9. Development should be incorporated into an overall development plan for the area; and

10. Environmental impact studies should be public information with the developer holding public hearings before a decision is made as to whether to proceed.

In its summary, the Task Force addressed an issue that was later voiced strongly by residents of the area--the social and economic impacts of the development. The summary read in part,

> "It bears reiteration that the fundamental justification for approving the development of the lignite deposits is the favourable effect that this might have on the economic and social well-being of the local people, many of whom are people of Indian ancestry...
>
> "The maximum employment of local people will be beneficial for several reasons. The first and most obvious reason is the provision of wage labour in communities that presently are confronted with an employment problem. In addition, it will result in on-the-job training and will improve the skill of local workers. Further, it will reduce to the essential minimum the influx of new people into the existing communities and will proportionately reduce the social tensions."[58]

An engineering and economics study was undertaken about the same time by the Shawinigan Engineering Co. Ltd. (SECO) acting as consultant to the Ontario Government, Ontario Hydro and ODL with ODL as project manager. SECO was directed in December 1972 to estimate the quantity, quality and cost of production of lignite available as fuel for an on-site power plant, to determine the capacity and type of a suitable power plant, to determine the environmental effects of construction and operation of the mine and power plant, to determine special restrictions that might apply to power production due to special factors such as type of fuel, remoteness of site, and climatic conditions, and to estimate the cost of power produced.

SECO's conclusions in October 1973 were that the coal field contained a sufficient quantity of lignite to fuel a 1000 MW power plant, quality of the lignite was adequate provided appropriate boiler design was used, the overall project was technically feasible, the power plant would offer reliability and flexibility comparable to that of other coal-fired plants, given proper design and control, the effect on the

environment would be acceptable, the project should generate social and economic benefits for the inhabitants of northern Ontario, and the cost of energy generated would be comparable to that available from other thermal power sources.

The study failed to meet a number of recommendations of Task Force Onakawana. For example, with the emphasis firmly placed on a power plant, little was said about alternative uses of the lignite. There was no detailed plan of reclamation included. The Task Force and SECO disagreed widely on reclamation potential, with the Task Force stating "Observations of existing spoil piles from earlier workings at Onakawana confirm that natural revegetation at best is very slow." and SECO stating "the resultant free draining spoils should support a prolific volunteer growth of native species." With regard to the social and economic impact, SECO anticipated that for every two jobs created by the project, one additional job should be created in local communities; population influx, probably exceeding a thousand, would depend on employment policies and training programs. The study went on to say that,

> "The short-term economic and social impact during the construction period of the complex is adequately covered in the Task Force Onakawana Report."[54]

Obviously, further studies would be needed on the physical and socio-economic environment.

Nor was Ontario Hydro convinced that an on-site power plant was the optimum use of the lignite. Ontario Hydro argued that minability of the lignite was not proven and firm coal costs had not been established and therefore that no accurate assessment could be made at that time.

ODL was still eager to exploit the lignite, preferably at an on-site power plant and with Ontario Hydro developing, owning and operating the generating station and buying the coal from ODL. In March of 1975, ODL presented a report to the Ministry of Natural Resources in support of a request for a 21-year lease, pointing out that,

> "Because of Ontario Hydro's ability to raise capital at a substantially lower rate than private industry and its background in the field of power generation, the cost of power to the Ontario consumer would be reduced if Ontario Hydro owns and operates the plant."[22]

In November 1975, Ontario Hydro formally advised the Ministers of Natural Resources and Energy that,

> "...usefulness of Onakawana lignites as a fuel for electric power to be developed by Ontario Hydro does not seem worthwhile...Consequently we feel we should terminate all our work and studies concerning Onakawana forthwith."22

Nevertheless, if other parties were interested in generating power, Ontario Hydro would be prepared to purchase the power provided that it was comparable in price and reliability with other components of the Ontario Hydro system.

ODL continued to press for development, telling the Royal Commission on Electric Power Planning in 1976 that the increasing cost and possible future scarcity of oil and coal imported into Ontario had improved the economics and prospects of an Onakawana power plant, that development would produce economic and social benefits in Ontario, and that reclamation would enhance the environment of the area.

In May of 1977 the Ministry of Natural Resources submitted a document to Cabinet supporting ODL's request for a 21-year lease, pointing out that while earlier economic analyses had stressed that development at Onakawana could, at best, be economically marginal, the analyses had treated Onakawana in isolation and given little attention to the potential for stimulating other development in the region. Substantial deposits of other minerals such as high grade limestone, fireclays and kaolin also existed in the area, needing power for processing. Local concerns were considered to be important with the Ministry of Natural Resources stating,

> "Before any mining lease is granted, the government would need to decide on its approach with respect to advising/involving local people in discussion of the proposed course of action.
>
> "This would need to be closely linked with consideration of an approach with respect to environmental appraisal and protection measures....

> "Most important, it is imperative that local people, both native and non-native, be informed of and involved directly in the project...at the earliest possible date, and given firm assurances that a significant portion of the continuing employment created will be open to them."22

Five alternative arrangements for environmental assessment were set out with the suggestion that Cabinet decide among them:

1. Accept the report of Task Force Onakawana as an acceptable environmental impact assessment;

2. Refer to the Royal Commission on the Northern Environment (RCNE);

3. Place under the Environmental Assessment Act with the developer bearing the costs;

4. Place under the Environmental Assessment Act with the Government bearing the costs;

5. Make some other arrangements.

Ontario Hydro supported the granting of a 21-year lease and also agreed to reconsider the project with ODL, SECO and STEAG (an engineering firm) participating after an offer by STEAG to provide the financing for both the coal mine and power plant with Ontario Hydro operating the power plant and assuming ownership after 30 years.

In June of 1977 the Ontario Cabinet gave approval in principle to a 21-year lease and in August the Ministry of Natural Resources granted another licence of occupation to allow ODL to do soil stability tests and drilling to determine tonnages. In October, ODL agreed to designation under the Environmental Assessment Act.

THE ENVIRONMENTAL ASSESSMENT ACT, 1975

PURPOSE OF THE ACT

Prior to 1975, Ontario's environmental protection legislation was concerned mainly with regulating the emission of pollutants to land, air or water from existing sources. This after-the-fact approach failed to deal with problems accruing to the broader social environment or to foster inclusion of environmental factors in the evaluation of new undertakings. Environmental assessment legislation was designed to broaden the definition of "environment" and to ensure that environmental considerations are carefully identified and evaluated, forming an integral part of the information upon which decisions are to be based.

The Environmental Assessment Act received Royal Assent in 1975, its purpose: "the betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment." In the Act,

> " 'environment means'
> " (i) air, land or water,
> (ii) plant and animal life, including man,
> (iii) the social, economic and cultural conditions that influence the life of man or a community,
> (iv) any building, structure, machine or other device or thing made by man,
> (v) any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from the activities of man, or
> (vi) any part or combination of the foregoing and the interrelationships between any two or more of them,
>
> in or of Ontario."[6]

The main objective of the Act is to improve the process of decision-making. The legislation is broad in scope in order to provide decision-makers with information on the entire range of effects (both positive and negative) which a project might generate. The environmental assessment process is designed to ensure that all reasonable alternatives and their consequences are evaluated by the proponent and that these factors are carefully weighed before a decision is made on whether or not approval of a project should be granted. The Ministry of the Environment said in its submission to the RCNE, "Perhaps the intent of the Legislature might have been clearer had the statute been entitled not the Environmental Assessment Act but, 'The Decison-Making Act'."

THE PLANNING PROCESS

Under the Act, the proponent of an undertaking (an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity) is directed to submit an environmental assessment to the Minister of the Environment and not to proceed with the undertaking until: (a) the environmental assessment has been accepted by the Minister; and (b) the Minister has given his approval to proceed with the undertaking. Environmental assessment refers both to the planning process and the document which records it.

In order to assist the proponent in preparing an environmental assessment that will be acceptable, the Ministry of the Environment has prepared General Guidelines for the Preparation of Environmental Assessments which explain the terms and requirements of the Act. Guidelines are meant to advise rather than to be a checklist, thereby allowing the proponent maximum flexibility while at the same time ensuring that the requirements of the Act are met. A supplement to the General Guidelines has been prepared by the Ministry of Culture and Recreation on the man-made heritage components of environmental assessments and published both separately and as an appendix to the General Guidelines. Consultation between the proponent and the Ministry of the Environment early in the planning process can lead to the development of guidelines specific to a project. In October 1982, the Ministry of the Environment published Guidelines for Pre-Submission Consultation. Early consultation between the Ministry and the proponent is meant to identify the concerns of government reviewers and other possible participants, to locate documents such as other environmental assessments or studies relevant to the proposal being considered, to ensure that the proponent is aware of other approvals or permits required, to provide advice on methodologies and procedures, to provide pertinent information already available, to allow for decisions as to allocation of responsibility for collection of other information, to allow for discussion of requests for information and analysis made by reviewers and other participants, and to establish a project timetable.

The steps involved in planning an undertaking that is subject to the Act are:

1. Identify the purpose;
2. Identify alternatives;
3. Study the environment which may be affected by alternatives;

4. Identify likely effects of alternatives on the environment;
5. Identify mitigation possibilities for the negative effects of alternatives;
6. Evaluate alternatives in terms of their positive and negative effects on the environment;
7. Decide on the most acceptable alternative.

The first step, identification of the purpose, is meant to be in general rather than specific terms. By leaving the purpose in general terms, the way is left clear to identify, compare and evaluate the consequences of alternatives to an undertaking and alternative methods of carrying out an undertaking. The Act does not define "alternative" and the Ministry of the Environment's General Guidelines provide only a vague description. However, the General Guidelines do specifically state that,

> "What the effect would be of not providing a solution (the 'do-nothing' alternative) should be discussed."[16]

It is up to the proponent to determine what the alternatives are.

Studies of the environment as it exists prior to development are required in order to form a baseline of data for prediction of likely effects. For example, it would be difficult, if not impossible, to estimate an increase in atmospheric SO_2 due to an undertaking if one did not know what the measure was to begin with; or to predict how many new classroom spaces for the employees' children would be needed if one did not know the current school age population and school capacity. How extensive these data should be is, again, not spelled out, but the Ministry of the Environment in a submission to the RCNE said,

> "It is not an attempt to build a data base for the Ontario Government at the proponent's expense. The rule of thumb is that the level of detail need only be sufficient to support the kind of decision for which approval is requested."[14]

The next step is to examine probable effects, whether adverse or beneficial, on the environment arising from the various alternatives. The General Guidelines recommend:

> "The analysis of the effects should take account of the location, size or phasing of the proposal. The duration of effects should be

> stated; there should be a prediction of short- and long-term effects. This should cover all phases of the project, including construction, operation and maintenance and abandonment... Cumulative effects and possible accidents should also be considered."16

Since any development will have adverse effects of some kind, the proponent is required to consider how these may be minimized, mitigated or remedied. For example, strip mining entails unavoidable destruction of soil structure and profile, but techniques exist for overcoming this kind of damage and should be identified. Or, for an undertaking that lies outside municipal boundaries and is therefore not subject to municipal taxes, the proponent should investigate ways of assisting an affected municipality to cope with a suddenly increased population.

The next step is the evaluation of the advantages and disadvantages of the alternatives, leading to the last step, identification of what the proponent considers to be the undertaking.

The series of steps leading up to selection of the most acceptable alternative may be repeated several times during the course of the planning process to narrow down the field of alternatives. The Ministry of the Environment,

> "...does not encourage proponents to carry alternatives to subsequent stages of the study once reasonable grounds for discarding them have been identified."16

An environmental assessment document is then prepared which is, in essence, the recorded form of the process that has just been completed. It is to consist of:

> "(a) a description of the purpose of the undertaking;
>
> (b) a description of and a statement of the rationale for,
>
> (i) the undertaking,
> (ii) the alternative methods of carrying out the undertaking, and
> (iii) the alternatives to the undertaking;

(c) a description of,

(i) the environment that will be affected or that might reasonably be expected to be affected, directly or indirectly,

(ii) the effects that will be caused or that might reasonably be expected to be caused to the environment, and

(iii) the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking; and

(d) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking."6

With the environmental assessment's submission to the Minister, the Ministry of the Environment's formal inclusion in the process begins.

ADMINISTRATION

After the environmental assessment has been submitted to the Minister, the Ministry of the Environment co-ordinates a government review by interested ministries or agencies to evaluate its completeness and accuracy and to ascertain whether the assessment provides a satisfactory basis on which to make decisions. The Ministry of the Environment attempts to resolve disagreements between ministries or agencies through consultation but it cannot impose solutions; resolution of disagreement would come from the Ministers involved, from a Cabinet committee, or from the full Cabinet.

When the review process is completed, a formal public notice is given and the official written government review becomes a public document. From the time of its submission to the Ministry of the Environment, the environmental assessment document is placed on the public

record, and people who are interested in it have a chance to inspect and review it. The public then has an opportunity to evaluate the government review of the environmental assessment, and to comment on it. Members of the public may make written submissions to the Ministry of the Environment at this stage, including requirement of a hearing. This period for public comment is a minimum of thirty days beginning at the time that notice of the completion of the government review is given.

There are two types of decisions to be made in the environmental assessment review process. First, it must be decided whether to accept the document, or to amend it and accept it. Second, it must be decided whether the project should be approved, approved with terms or conditions, or refused approval. The terms or conditions imposed at the time of approval can be quite broad, including:

> "the methods and phasing of the carrying out of the undertaking;
>
> the works or actions to prevent, mitigate or remedy effects of the undertaking on the environment;
>
> such research investigations, studies and monitoring programs related to the undertaking, and reports thereof, as he [the Minister of the Environment] considers necessary;
>
> such changes in the undertaking as he considers necessary;
>
> that the proponent enter into one or more agreements related to the undertaking with any person with respect to such matters as the Minister considers necessary;
>
> that the proponent comply with all or any of the provisions of the environmental assessment as accepted by the Minister that may be incorporated by reference in the approval;
>
> the period of time during which the undertaking, or any part thereof, shall be commenced or carried out."[6]

If no hearing is required, the Minister can act by himself in deciding whether the environmental assessment is satisfactory as a basis for a decision to be made. If it is not, he may send it back for

changes before he accepts it. Then, the Minister must act with Cabinet concurrence to decide whether to approve the project itself, approve it subject to terms and conditions, or refuse to give approval.

A hearing may be required by the Minister, the proponent, or members of the public who have made submissions. Hearings can be held before either of two boards, the Environmental Assessment Board or a Joint Board established under the Consolidated Hearings Act.

The Environmental Assessment Board is an administrative tribunal established under the Environmental Assessment Act in April 1976. As defined in the Act, the Board is to consist of not less than five members. These members are appointed by the Cabinet for a fixed term of one, two or three years, and they cannot be employed in the public service. Members of the Board must be present throughout a hearing in order to participate in a decision. Hearings of the Board are open to the public unless the nature of the information discussed requires these sessions to be held in camera.

A second type of hearings board was set up in 1981 under the Consolidated Hearings Act, passed to streamline procedures for undertakings subject to hearings under more than one of the following Acts:

The Environmental Assessment Act, 1975

The Environmental Protection Act, 1971

The Expropriations Act, sections 6, 7 and 8

The Municipal Act

The Municipality of Metropolitan Toronto Act, section 65(4)

The Niagara Escarpment and Planning Development Act, 1973

The Ontario Municipal Board Act

The Ontario Water Resources Act

The Parkway Belt Planning and Development Act, 1973

The Planning Act

The Regional Municipality of Ottawa-Carleton Act, section 140a(9)

The Regional Municipality of York Act, section 166(3) and (9)

The Joint Board is composed of one or more members of either or both of the Environmental Assessment Board and the Ontario Municipal Board with the chairmen of those Boards determining the Joint Board's composition and its chairman. As with the Environmental Assessment Board, members must be present throughout a hearing in order to participate in a decision. The Joint Board has the power to award costs of a proceeding and to determine who will pay them. If a proponent deems it to be in his interest that a hearing be held before the Joint Board rather than the Environmental Assessment Board, he may do so by giving notice to the Hearings Registrar named under the Consolidated Hearings Act.

Both Boards are decision-making bodies whose decisions are final unless, within 28 days, the Cabinet in the case of the Joint Board, and the Minister of the Environment with the approval of Cabinet in the case of the Environmental Assessment Board, choose to vary the decision, substitute for it, or require a new hearing. The involvement of Cabinet in the project approval decision recognizes that the decision will often involve trade-offs between legitimate but competing or conflicting objectives of the Government. Cabinet is ultimately responsible to the Legislature and to the people of Ontario for determining which values are to be given the most weight.

Formal public involvement in the decision-making process of the Environmental Assessment Act is limited to receipt of notices, inspection of the environmental assessment document and the government review, the right to make written submissions, the right to require a hearing (for those who have made written submissions), and attendance at hearings. Although public participation at an early stage in the environmental assessment process is not required under the Act, the Ministry of the Environment considers it to be in the proponent's interest:

> "[Public participation] can be of great assistance to the proponent in preparing the environmental assessment document, and in facilitating its passage through the review process and public hearings (if held) of the Environmental Assessment Board. The proponent is likely to be on firmer ground if evidence can be presented of previous consultation with those likely to be affected by the undertaking or its alternatives.
>
> "Such public involvement can identify background information and local perspectives possibly previously unknown to the proponent, and can provide data on public goals, attitudes and

> values. Public participation early in the planning process may highlight areas of public concern, perhaps thereby helping to avoid confrontation between proponent and public, and consequent delay of the proposal. The public may also put forward alternative solutions to problems, which otherwise would not have been perceived."16

APPLICATION

What kinds of project are subject to the Act? In a nutshell, undertakings in the public sector are subject to the Act unless exempted, undertakings in the private sector are exempt unless designated.

When the Act was proclaimed, a number of exemption orders were made. Activitites of the Ministries of the Attorney-General, Colleges and Universities, Community and Social Services, Correctional Services, Education, Health, Labour, Revenue and the Solicitor-General were exempted because environmentally significant projects are carried out on their behalf by the Ministry of Government Services and regulated as activities of that Ministry. Environmentally significant activities of the Ministry of Agriculture and Food and the Ministry of Housing were exempted because they were already regulated under other legislation. Municipalities were exempted initially to allow for discussion about which types of municipal undertakings should be subject to the Act, but regulations to apply the Act to environmentally significant municipal projects took effect on June 3, 1980. For those ministries or agencies not receiving blanket exemptions, two types of activities were exempted: first, those unlikely to have any serious environmental consequences; and second, undertakings already well under way in planning or implementation.

The Act allows the Cabinet or the Minister, with Cabinet approval, to exempt any undertaking where it is deemed to be in the public interest to do so. A January 1983 publication of the Ministry of the Environment, Project Screening and Application for Exemption Orders under Section 29 of the Environmental Assessment Act, lists three criteria to be considered in the granting of exemptions: environmental insignificance, existence of an emergency situation, or existence of overwhelming public interest. If it is the proponent's opinion that he has a valid case for requesting an exemption, he must make application to the Minister of the Environment justifying his request and provide sufficient information for the Minister to make a judgement and a recommendation to Cabinet. If an exemption order is granted, it is published in the Ontario Gazette and EA Update, a periodic publication of the Ministry of the Environment.

Since application of the Act has not been proclaimed in force for the private sector, private undertakings are, in effect, exempt unless designated by regulation. The Cabinet may make regulations,

> "defining any enterprise or activity as a major commercial or business enterprise or activity; ...[and] designating any major commercial or business enterprise or activity...as an undertaking or class of undertakings to which this Act applies."6

Neither the legislation nor the General Guidelines sets out any criteria by which private sector undertakings are to be designated.

In July 1981, Premier Davis announced that he would appoint a permanent Environmental Assessment Advisory Committee to review proposed exemptions or designations and to advise him before decisions are made. In a letter to the Conservation Council of Ontario on July 28, 1981, the Minister of the Environment stated that the Advisory Committee's function would be to review proposed exemptions and designations at the request of any person. In a speech to the Conservation Council of Ontario on December 7, 1982, the Premier stated that the Minister of the Environment would be announcing shortly the complete terms of reference and appointment of a chairman and that,

> "The mandate of this Committee, which will consist of at least three members, will be to review, as requested by Government, the overall implementation of the Act as well as exemption and designation applications. It will also advise the Government prior to decisions being made on these matters." (emphasis added)

When questioned in the Legislature on December 9, 1982 as to the distinction between "at the request of any person" and "as requested by Government", the Minister of the Environment replied,

> "At the time the letter was written, if it did not point out there were two or more options being considered in terms of the structure of the advisory committee to which the commitment had been made, then it was incomplete in that respect. There were at least two options being considered...The statement by the Premier this week is the correct representation of the decision."

There has been no further word as to when the terms of reference or appointment of a chairman will be announced.

A number of projects have now come under the Act, and many more have been exempted. The status of environmental assessments that were submitted to the Ministry of the Environment by the end of 1982 is shown in Table 1.

TABLE 1

STATUS OF ENVIRONMENTAL ASSESSMENTS SUBMITTED TO THE MINISTRY OF THE ENVIRONMENT AS OF DECEMBER 31, 1982

Environmental Assessment Status	Number
Submitted	4
Withdrawn or to Be Withdrawn	7
Under Review	15
Review Completed	8
Project Approved	52
Project Exempted	7
TOTAL	93

Source: EA Update, December 1982 and Ministry of the Environment.

A further 246 undertakings have been exempted from the provisions of the Act, lending credence to the mocking pun "Environmental Exemptions Act".

Only four private sector projects have been designated to date: the Reed Paper proposal in northwestern Ontario, Inco's proposed hydroelectric generating station on the Spanish River, a proposal by an American corporation to dispose of sewage sludge from Detroit on Fighting Island, a Canadian island in the Detroit River, and the Onakawana project.

ONAKAWANA AND ENVIRONMENTAL ASSESSMENT - THE EARLY STAGES

THE LEASE

In February of 1978 two events important for ODL occurred; a lease was signed with the Ministry of Natural Resources, and regulations were filed designating the Onakawana undertaking subject to the Environmental Assessment Act. The lease, commencing on February 1, 1978, is for a 21-year term with an annual rent of $12,800 (roughly one dollar an acre). Within seven years, ODL is required either to establish an operation mining 1,000,000 tons of coal a year or to have executed financial arrangements to establish an operation mining 1,000,000 tons of coal a year, to begin in two years. If, due to reasons beyond ODL's control, the company is unable to fulfill these obligations, the Minister of Natural Resources may approve an extension of time. A satisfactory rehabilitation site plan is to be submitted prior to commencement of mining operations and a Letter of Credit deposited as security for "due performance of the Lessee's obligations." Provincial Acts specifically named as those to which the project is subject include the Mining Act, the Mining Tax Act, the Forest Fires Prevention Act, the Ontario Water Resources Act, the Petroleum Resources Act, the Environmental Protection Act, the Beach Protection Act, the Lakes and Rivers Improvement Act, and the Environmental Assessment Act. Should an inquiry or hearing held under the authority of a provincial statute or regulation determine that the development is detrimental to or against the interest of the people of the whole or part of Ontario, the lease may be terminated without liability to the Crown.

THE DESIGNATION

On February 24, 1978, Ontario Regulation 129/78 was filed defining ODL's activity of operating a lignite strip mine and any related facilities as a major commercial or business enterprise or activity and designating it as an undertaking to which the Environmental Assessment Act applies (See Appendix D). Further,

> "'related facilities' includes any facilities necessary for,
>
> (i) the production, storage and transmission of lignite or products derived therefrom, and
>
> (ii) the restoration of any mined area; and
>
> 'products' includes energy."33

EARLY CONSULTATION

Even before ODL's designation was official, discussions had begun between ODL and the Ministry of the Environment to determine how ODL should proceed in order to meet the requirements of the Act. In January 1978, the Environmental Approvals Branch of the Ministry drew up lengthy draft project guidelines and circulated them to other government ministries and to ODL for review and comments. On March 3, ODL submitted to the Ministry a paper entitled "Proposed field investigations in connection with the environmental assessment of the Onakawana lignite development", and after meeting with the Ministry made five minor modifications. In a letter to the Director of the Environmental Approvals Branch on March 13, ODL declared,

> "As it was the general consensus that our proposed field program is adequate and covers all of the major impact areas, we have instructed a number of potential consultants to formulate plans to carry out the field program."[29]

The Ministry view, however, was that it had agreed to the company's proposal only for the time being so that ODL might begin its field work in April and that revisions to the project guidelines were actively being worked on.

In April, ODL hired Environmental Applications Group (EAG) to conduct baseline environmental studies. While investigations into the natural environment appeared to be well-formulated, EAG was warned that socio-economic data would be considerably harder to come by. Much of the data that would be necessary, particularly for native communities, was not already available and would have to be sought in the communities themselves.

On May 19, 1978, ODL was provided with the revised guidelines for the Onakawana project which included a paragraph not in the earlier version,

> "Although it is not a mandatory requirement in conducting this assessment, it is important that the public (especially Native people) be involved in identifying potential impacts of various alternatives and their relative importance to society....Recognizing the special

> relationship of Native people to their environment, the nature of a resource-based industry in the North, and the provisions in the Act for public involvement in the formal decision-making process, it is advisable for a proponent to develop a public participation programme with Native and non-native people before a formal submission is made."17

ODL replied,

> "The inclusion of guidelines dealing specially with cooperation with native people is noted. In this regard, we are planning to work directly with the Grand Council of Treaty #9, local chiefs and elders in Moosonee and Moose Factory...We are also considering a program of public participation and information as soon as basic social impact data are available."30

EAG requested that an interministerial meeting be called so that guidelines could be clarified and ministries might offer suggestions as to what factors the socio-economic studies should examine. Representatives from the Ministries of Northern Affairs, Housing, Culture and Recreation, Treasury, Economics and Intergovernmental Affairs, Natural Resources and the Environment and from the RCNE met on June 7 and concluded that not enough was known about ODL's plans, that clarification should be sought, and that another meeting should be convened later in the month.

Representatives of ODL and EAG attended the interministerial meeting of June 27 to answer questions and to make known their concerns about the environmental assessment process. They were worried that conflicting demands by various ministries would hinder its flow and requested that the Ministry of the Environment co-ordinate government response to their work; they questioned why the proponent should be expected to fill in data gaps when the Government did not possess the required information; they wondered where they would stand if the information collected was deemed unacceptable at some later date. The Ministry requested that EAG provide a more detailed version of the study proposal which the Ministry would then undertake to circulate to other ministries with a review to be returned to the consultants.

Researchers at the RCNE reviewed the expanded proposal and came to the following conclusions:

1. The study area was ill-defined. More emphasis should have been placed on local communities such as Moose Factory and Moose River Crossing.

2. The criterion for communities to be included in the study area was availability of data, not what was required for a good assessment.

3. There was no indication as to where data on native people were to come from or how reliable they were.

4. There appeared to be a misconception that the information was available and could be easily and quickly gathered. The data were inadequate or, in many cases, non-existent. It was recommended that gaps be filled by seeking information from the people of the communities.

EARLY PUBLIC PARTICIPATION

Although ODL was aware that public involvement in the socio-economic assessment could prove valuable, it was still unclear as to how this involvement would be solicited. Whereas Ontario Hydro was developing a substantial public participation process through its citizen advisory committees, ODL rejected this approach, preferring to deal with the public in small groups. In its "Outline of program for community involvement in the socio-economic assessment of the Onakawana lignite mine development" submitted to the Ministry of the Environment in July 1978, ODL projected a program with the following features:

1. Tours of strip-mining operations in western Canada;

2. A portable visual display available to community, government and school groups;

3. Citizens' Advisory Groups from Moosonee/Moose Factory, Fraserdale, Cochrane, Kapuskasing/Smooth Rock Falls and Timmins to receive information, advise on community concerns, assist in developing unpublished but required data, assist in measuring public attitudes and concerns, and advise how local concerns could be fairly considered;

4. Treaty #9 Advisory Group to deal with specific concerns of native people, skills training and native employment;

5. Public participation meetings as required on the advice of the advisory groups;

6. Initiation of training programs for heavy duty mechanics, electricians and general purpose equipment operators at Moosonee and Timmins;

7. Temporary training employment of selected individuals at coal-mining operations in western Canada.

ODL's public involvement program had already begun in June when the Board of Directors of the James Bay Education Centre (JBEC) were flown to Alberta to see strip-mining in operation. Between September 7 and November 22, 1978, ODL met with Chambers of Commerce from Timmins, Kapuskasing, and Smooth Rock Falls, with community groups in Cochrane, Kapuskasing and Moosonee, and with the Association of Professional Engineers of Ontario and the Association for Certified Engineering Technicians and Technologists of Ontario in Kapuskasing. A slide show, movie and print display were taken to Career Day at Northern Lights Secondary School in Moosonee.

There appeared to be two major problems with this type of participation. First, the general public perceived most of the meetings as closed affairs, involving only those who already held most of the power in the small northern communities, and excluding the man-in-the-street who feared social distress arising from development. Second, information was presented in a very positive light, emphasizing the benefits to be derived, exaggerating the number of jobs that would be created indirectly, and leaving the impression that development would go ahead with or without Ontario Hydro's involvement.

Meetings were held with Grand Council Treaty #9 but the hoped-for advisory group did not materialize. Negotiations were begun with Northern College of Applied Arts and Technology and JBEC to begin planning for job-training programs. Three native tradesmen from the Moosonee-Moose Factory area were hired to work in the parent company's western mines with the understanding that they could return when the Onakawana development began.

ENGINEERING AND ECONOMIC STUDIES - PHASE I

While public involvement programs were being considered and baseline environmental studies undertaken, engineering and economic studies were also in progress. In August of 1978, a five-volume report by Shawinigan Steag Co., Ontario Hydro and ODL entitled Onakawana Development Study was released. The purposes of the study were to review and

update the 1973 SECO study and to prepare an economic comparison of power produced at Onakawana and a hypothetical 3000 MW generating station in southern Ontario fuelled with bituminous coal. The main conclusion reached was that,

> "...power produced from the Onakawana Project constructed by the private sector is essentially the same cost as power produced from an alternative future coal fired Ontario Hydro generating plant located in Southern Ontario. In view of this conclusion, Ontario Hydro will include Onakawana in their E15/E16 approvals process as an alternative for the next thermal station to be committed in their East system."56

While ODL seemed to feel that the conclusion of the report assured that Ontario Hydro would be a partner in development at Onakawana, Ontario Hydro was saying,

> "...the 1978 load forecast has had the effect of delaying the need for additional generation beyond Darlington G.S. to the late 1980's. This obviously has had an influence on the proposed 1000 MW Onakawana station which would be one of the candidates for the post-Darlington period. The Onakawana studies have indicated that the plant would be competitive with 750 MW coal fired stations but it is not economic compared with nuclear generation."37

While Ontario Hydro had not closed the door on Onakawana development, its interest appeared restrained and it had not committed itself to going ahead with the proposal.

In December of 1978, Peat Marwick and Partners completed a study investigating the economic benefits which could flow to Ontario from the Onakawana project. In light of later findings, the projections regarding employment were over-optimistic at 14,600 man years of direct and indirect employment over a five-year construction period and 26,100 man years of employment during operation. Benefits other than employment and income to workers would include,

> "1. replacement of imported energy with that from a domestic source;
>
> 2. significant regional development benefits in Northeastern Ontario....

3. increased utilization of the Ontario Northland Railway.

"In addition, the project would result in major foreign exchange savings, due to the replacement of U.S. coal...In the early years of operation, this saving is in the order of $60 million per year (1978 U.S. $)."49

ONTARIO HYDRO BECOMES A PROPONENT

At the beginning of 1979 then, ODL was eager that the project go ahead but Ontario Hydro was hesitant about committing its resources to a generating station at Onakawana. On February 9, 1979, in a speech to the Cochrane Board of Trade, Premier Davis settled matters by announcing that he had requested the Ontario Hydro Board of Directors to implement a program directed towards investigation of basic engineering for the mine and power plant, completion of an environmental assessment and approvals, exploratory drilling and bulk sampling, determination of future power needs of northern Ontario and how power generated at Onakawana could serve those needs, and examination of alternative financial arrangements.

Given the provincial surplus of electricity, Ontario Hydro's cutbacks in production elsewhere, and its long-standing doubts as to the feasibility of power generation at Onakawana, why did the Premier direct that it go ahead with studies? Part of the answer, of course, was the need for an economic shot-in-the-arm in the northeastern area of the province which the projected development could supply. Part of the answer must also be political. In 1979 the Progressive Conservatives (PC's) were in a minority position and the three seats in northeastern Ontario closest to Onakawana were important. Cochrane North was strongly Conservative but the high-profile incumbent was contemplating retirement. The PC's had captured Cochrane South in 1977 from the New Democratic Party (NDP) who had won it in the two preceding elections. In Timiskaming, the PC's currently held the seat but seemed to be taking turns with the NDP. And the prospect of new jobs for northeasterners would not hurt the party's chances in the next election. In any event, all three ridings sent PC members to Queen's Park in 1981.

In March of 1979, the Ontario Hydro Board of Directors approved continuation of studies leading to an environmental assessment of the Onakawana project and the Ministry of Energy announced that Ontario Hydro and ODL would conduct a joint program. ODL was to be responsible for studies necessary for a proposal of an environmentally acceptable mining plan, including restoration of the coal field. Ontario Hydro

was to be responsible for studies necessary for proposing an environmentally acceptable construction and operation plan for a generating station of approximately 1000 MW on the site, and for identification and recommendation of environmentally acceptable transmission line routes between Onakawana and Sudbury.

An intensive exploration of the physical and social environments began, taking the next year and a half to complete. Engineering studies were conducted on the lignite, the mine, the generating station and the transmission line. These studies would be referred to by the proponents as the Phase II studies.

While the studies were going on, the two co-proponents sought public involvement in an attempt to provide a two-way street, first, to inform the public of what was happening, and second, to give the proponents the benefit of the expertise of the people who lived in the region so that the environmental assessment might be as complete as possible.

ONAKAWANA AND THE PUBLIC INVOLVEMENT PROCESS

ODL AND PUBLIC INVOLVEMENT

Although Ontario Hydro and ODL were co-proponents, each chose a very different style of public involvement. ODL preferred small meetings with selected audiences rather than large public meetings; the company did not participate directly in Ontario Hydro's information centres or public committees but did attend as an observer at the June 1980 meetings of the Northern Municipal Liaison Committee and the Southern Municipal Liaison Committee.

Between early 1979 and late 1980, ODL met with representatives of Cochrane, Moose Factory, Moosonee and Timmins on seven occasions. During the same period, company personnel also met with the Ontario Metis and Non-Status Indian Association (OMNSIA), the Timmins-Porcupine Chamber of Commerce, the Cochrane Board of Trade and the Ontario Northland Transportation Commission, and acted as guest speaker at the annual meeting of the South Cochrane Cattlemen's Association and at the North Clay Belt Economic Development Conference. ODL, in discussing its public involvement program stated,

> "Perhaps what does not come across too strongly...is our corporate programs to become involved in the local communities which will be most heavily impacted by the Onakawana development -- principally, Moose Factory, Moosonee and Cochrane. These examples will serve to illustrate:
>
> "a) We have employed three native tradesmen from Moosonee/Moose Factory in our Western mines. These people learned their skill through the James Bay Education Centre programs. They hope to return and work at Onakawana when the project proceeds;
>
> b) Wherever possible, we have hired native people for our field programs. For the 1979 fall program, ten out of a total crew of twenty-four were natives, including two Indian women in Moosonee who undertook the weekly camp wash;
>
> c) Local northern services and contractors have been utilized extensively in our field programs -- J.B.E.C. to cater camp

meals, M.J. Labelle of Cochrane for mining, trenching and heavy equipment work, Mr. Fletcher of Cochrane as expediter and for warehouse services, Huisson Aviation of Timmins for helicopter services, etc., etc.

d) And lastly, we have become personally and corporately involved in the communities and schools -- the Cochrane Board of Trade, the Moose Band, the Onakawana Bonspiel in Moose Factory, school trophies, support of local artistic enterprises, liaison between J.B.E.C. and Northern Colleges on funding and training programs, etc."[31]

Nevertheless, the widespread perception remained among local citizens that ODL's public involvement program did not involve the public. While information was given to local organizations, the meetings were described as "only dinner meetings" by one municipal representative. The community of Moose River Crossing was not included.

Residents of the area expressed concern that ODL was leaving the impression that the project would go ahead even if Ontario Hydro decided against participation, that job training was already under way at JBEC, and that both northern and southern communities in the study area had been assured of preference in hiring.

ONTARIO HYDRO PUBLIC INVOLVEMENT

Early Meetings

Ontario Hydro chose the structured committee approach to public involvement in the environmental assessment process, having learned through past experience that information centres, public meetings and media dissemination did not ensure community approval of proposed facilities. During the fall of 1979, Ontario Hydro representatives met with people in the organized communities of the study area and in Moose Factory and Moose River Crossing to identify individuals and organizations who might be interested in serving on committees to provide public input into the environmental assessment. The coastal reserves of Attawapiskat, Fort Albany, Kashechewan and Winisk were contacted through the Moose Band but chose not to participate. Moose River Crossing named a representative but no one attended committee meetings.

The first of three series of Information Centres was held in January and February of 1980 in Cochrane, Kapuskasing, Moose Factory, Moosonee, Sudbury and Timmins to inform the public of studies proposed, to identify areas of environmental concern, and to solicit members of the public as participants on committees. Background material was available in English, French and Cree. The backgrounders, in Cree and English, were mailed to the coastal reserves. Two types of committees were established by Ontario Hydro to involve the public identified through the early meetings and the Information Centre, the Citizens' Committee for the Onakawana transmission route and the Municipal Liaison Committee.

The Citizens' Committee For The Onakawana Transmission Route

The citizens' committee form evolved from a series of seminars convened by Ontario Hydro in 1975 with representatives of community planning groups, agricultural organizations, environmental groups, and the provincial Government to examine methods which Ontario Hydro planned to use in siting future facilities province-wide. It became evident that some process was needed to involve the public in future planning and, after the seminars, nine working groups evolved to devise methods to do so. The working groups were formed to investigate nine major environmental and land-use factors:

"1. Human Settlements: the predominantly urban environment with its associated residential, commercial, industrial and institutional facilities.

2. Agricultural Production: agricultural production and associated practices through analysis of the potential of the land (including climatic limitations) to produce agricultural products, the present use and productivity of that land, and specialized agricultural uses of specific land areas (i.e., fruit and vegetable production, tobacco production, etc.)

3. Timber Production: the resource-use aspects of forest cover, both from the point of view of the use of existing forests (i.e., sawlogs, veneer, pulpwood, etc.) and the capability of the land to produce the renewable forest resource in the future.

4. Mineral Extraction: the mineral extraction industry through analysis of existing and planned extractive operations (e.g., pits, quarries, mines, oil and gas wells, etc.) and potential reserves.

5. Wildlife Resources: wildlife as a resource through analysis of natural habitats presently supporting, or capable of supporting, populations of wildlife game species.

6. Recreation: both intensive and extensive forms of recreation in terms of parks (national, provincial, conservation authority), linear recreational facilities (canoe routes, hiking trails), cottage areas, etc., as well as recreational potential in terms of park reserves and outdoor recreation capability.

7. Aquatic Communities: the water system component of the natural environment in terms of water quantity (e.g., wetlands as natural water storage reservoirs and regulators of stream flow) and water quality (i.e., present water quality, erosion hazard).

8. Terrestrial Communities: the natural biophysical (plant and animal) aspects of land-based communities in terms of unique features and the relative stages of natural ecosystem development or succession.

9. Appearance of the Landscape: the physical appearances of different landscapes and their susceptibility to change due to the imposition of transmission lines."[34]

The goal of the working groups was to produce a provincial map to help determine locations of future transmission lines that would minimize environmental disruption. Work began by compiling information, forming objectives (i.e., areas to be avoided because of serious adverse effects), and ranking objectives in order of importance. A subcommittee representing all working groups arranged an overall priority list of objectives which were then mapped. All areas containing the most important objectives were mapped first, unmapped areas containing the second most important objective were mapped next, and so on until all provincial land was covered. This process, with computer assistance, took approximately a year with maps completed by the fall of 1976.

Since then, citizens' committees formed to follow the same process have been established in 15 specific study areas, including the Citizens' Committee for the Onakawana transmission route.

Forty-two people identified in the meetings and Information Centre of 1979 and representing interests of agriculture, business, the environment, forestry, mining, municipalities, provincial ministries, tourism and transportation were invited to sit on the Citizens' Committee for the Onakawana transmission route. The Ministry of the Environment was also invited to send representation but felt it was more appropriate to act as a resource if requested than to participate actively. The Committee met nine times between March 1980 and April 1981 to provide input into the choice of a transmission line route (See Appendix F). The Committee would not be alone in its selection; a final recommendation would be based on the preferences of the Ontario Hydro study team, provincial ministries, municipalities in the area, and the general public as well as the Committee.

The Citizens' Committee was divided into three Subcommittees with each member choosing his own placement:

1. Settlement and Leisure--human settlements, recreation resources, and visual resources;

2. Industrial--timber resources, mineral resources, and agriculture;

3. Biological--wildlife resources, aquatic communities, and terrestrial communities.

Each Subcommittee's task was to review the data pertaining to its area of study, to identify environmental concerns in relation to potential effects of transmission line construction, operation and maintenance, and to rank the environmental objectives. In the early sessions, a number of environmental resources, their significance, and the potential changes (good or bad) that could be expected with construction of a transmission line were identified.

Before the third meeting, on May 10, 1980, the Ontario Hydro study team had integrated the concerns raised by the Committee with those identified earlier by Ontario Hydro and had drawn up a list of 26 environmental objective statements. Each objective statement now included possible mitigation measures that Ontario Hydro could take to minimize

potential adverse changes, and the net impact on the environment that could be expected with application of the mitigation measures. Each Subcommittee met to set preliminary orders of priority of the objective statements, ranking them within the nine environmental factors. In October 1980, the full Committee completed overall ranking of 29 final environmental objectives in descending order of priority:

"1. Avoid Indian Reserves and viewsheds of settled areas.

2. Avoid known archaeological and historical sites; i.e., Ministry of Culture and Recreation recorded sites and Ministry of Natural Resources historic and cultural sites.

3. Avoid designated and other canoe routes, hiking trails, existing and proposed cross-country ski trails, and related viewsheds.

4. Avoid timber management areas; that is, seed production areas, forest research areas, and intensive regeneration areas.

5. Avoid lakes designated for scientific research, sport fisheries management, and lakes with management potential; i.e., fishery assessment lakes, reclamation lakes, Nabakwasi commercial whitefish fishery, and lakes with potential for reclamation.

6. Avoid areas known to be frequented by rare and endangered species (bald eagle), and by birds and mammals vulnerable to human disturbance (known and probable osprey nesting areas, great blue heron colonies, Stetham Hill deeryard).

7. Avoid the viewshed of the route of the Polar Bear Express.

8. Avoid known moose aquatic feeding areas, moose wintering areas, and aerial survey plots with consistently high winter concentration.

9. Avoid identified sensitive or unique areas; i.e., Ministry of Natural Resources Sensitive Areas (categories: vegetation, geology and landform, complexes); Ministry of Natural Resources Earth Science Project area, International Biological Programme (IBP) areas; and licenced or unlicenced wildrice areas.

10. Avoid lakes and streams with known populations of cold water sportfish (lake trout, brook trout, rainbow trout); species which take many years to reach sexual maturity (lake sturgeon); and known spawning grounds for both cold and warm water species.

11. Avoid identified nesting and staging areas for waterfowl (e.g., black, mallard, goldeneye, ring neck, merganser ducks).

12. Avoid townsites and associated viewsheds.

13. Avoid Greenwater Provincial Park.

14. Avoid areas with identified high archaeological potential.

15. Avoid existing cottages and cottage lakes, approved cottage subdivisions, designated cottage lakes, resorts and resort lakes, commercial outpost lakes, and associated viewsheds.

16. Avoid Hersey Lake Conservation Area, proposed addition and private picnic area at Bigwater Lake.

17. Avoid land with good potential for timber production; that is, land characterized by a favourable combination of soil depth, soil mositure regime, and topography.

18. Avoid land designated as critical for agricultural use.

19. Avoid lakes and streams with known populations of warm water sportfish (yellow pickerel, northern pike, and smallmouth bass).

20. Avoid potential aggregate deposits designated as critical and significant.

21. Avoid active and inactive metallic and non-metallic mines, and mine waste disposal sites.

22. Avoid land designated as supplementary for agricultural use.

23. Avoid the viewsheds of Highways 101, 144, 11, regional road #85, and the CNR line.

24. Avoid potential cottage lakes and associated viewsheds.

25. Avoid official access points and Ministry of Transportation and Communications roadside stops.

26. Avoid the viewsheds of Highways 560, 655, 634 and the Papakomeka Road.

27. Avoid the proposed alpine ski development and viewshed of skihill summit.

28. Avoid other potential aggregate desposits.

29. Avoid hunt camps."40

After ranking had been completed, a new Subcommittee, the Route Identification Subcommittee was formed. Composed of five members of the Ontario Hydro study team, two from the Settlement and Leisure Subcommittee and one each from the Industrial and Biological Subcommittees, it met twice in November and December 1980 to identify 26 alternative transmission line routes: eight in the northern area (Onakawana to Pinard Transmission Station), six in the central area (Pinard TS to Porcupine TS), and 12 in the southern area (Porcupine TS to Hanmer TS).

In early 1981, the Ontario Hydro study team evaluated the alternatives based on the environmental objectives within each alternative, the quality of resources, their sensitivity to disturbance, the likelihood of their being affected, cost analysis, and engineering analysis. The number of alternatives was reduced to three in each of the north, central and south areas.

Two further meetings were held in which the full Committee reviewed the alternatives and discarded those which appeared to be most disruptive. At the final meeting in April 1981, the full Committee met, without members of the Ontario Hydro study team present, to select its preferred alternative. After the Committee had made its choice (N4-C2-S4) and stated its reasons for doing so, the Ontario Hydro team presented its preference (N7-C2-S4). In the south and central sections of the route, both groups were in agreement but in the north section they differed. The Ontario Hydro study team agreed to reassess its choice and inform the Committee of the final recommendation. On May 6, 1981, 14 months after the first Committee meeting, Ontario Hydro advised the members by letter:

> "Following field investigations related to the committee's route preference in the north section of the study area, Ontario Hydro is in agreement with the committee's choice of N4 as the preferred location....From these investigations, the joint planning work of Hydro and the citizens' committee, and, in consideration of the preferences of government ministries, municipalities and the general public, the proposed transmission line route to be documented in the Onakawana Environmental Assessment is N4-C2-S4."[45]

The Citizens' Committee preference had prevailed.

The Southern Municipal Liaison Committee

To provide public input into the environmental assessment of the generating station, a different form of committee was established, the municipal liaison committee. Its role was:

> "1. To ensure, through program/information review, that the interests/expectations of the local communities are understood and considered in the environmental studies;
>
> 2. To examine the potential effects of the proposed development on the environment and comment on Ontario Hydro's assessment of these effects;

3. To identify local opportunities and concerns about the potential effects of the proposed development on the social and community character of the area. To review Ontario Hydro's assessment and recommendations and to provide advice wherever possible;

4. To achieve an understanding of the programs which allows representatives to converse knowledgeably about the studies, with their councils or interest groups;

5. To monitor the public involvement program and comment on its ability to meet the information needs of the local communities;

6. To facilitate an open exchange of information between the proponents and the affected communities."41

"Community" could refer either to a geographic area, such as a town or region, or to a community of interests, such as mining or recreation. Because of the wide geographic area of impact and the differing conditions in north and south, the municipal liaison committee was split into northern and southern sections.

The Southern Municipal Liaison Committee (SMLC) met five times between April 22, 1980 and February 17, 1981 in Smooth Rock Falls (See Appendix G). The first meeting was devoted mainly to background information, history of the lignite deposits, overview of the proponents' Phase II studies, and form and function of the committees representing the public.

The Phase II studies were being conducted by three groups, Ontario Hydro, ODL, and Shawinigan Steag, which had expressed an interest in constructing the power project through private financing and ownership. Ontario Hydro had initiated nine major programs:

"1. Environmental assessment studies including field studies to define the existing environment, project definition studies to determine the environmental effects of the project and effects mitigation studies, all to be presented in an environmental assessment document;

2. Transmission route selection studies;

3. Social and community assessment studies;

4. Public involvement program;

5. Fuel studies (adequate fuel reserves, firmer fuel cost estimates, probable fuel contract conditions);

6. Engineering studies;

7. System requirements and system economics;

8. Financial and contractual arrangements; and

9. Provincial social and economic impact study (an evaluation that goes beyond cash flows and attempts to assess all of the project related benefits and costs of Onakawana and alternatives which accrue to the people of Ontario)."[41]

The studies were in their early stages with no results expected until the end of 1980. The findings would be incorporated in a draft environmental assessment scheduled to go to the Ontario Hydro Board of Directors by June 1981 with a recommendation regarding future activities. At this stage, Ontario Hydro stated, it was possible only to guess at what the recommendation might be. However, a warning was sounded again:

> "In summary, based on system needs, the Onakawana project does not appear to be required until the mid-1990's; and it does not appear to be the most cost effective project from Ontario Hydro's perspective for the generation of electricity."[41]

The Committee members agreed to the six-part role envisaged for them by Ontario Hydro but requested that a seventh be added, to discuss and review alternate sites and sources of generation. All members agreed that notes of meetings should be exchanged between the SMLC and the Northern Municipal Liaison Committee (NMLC). It was suggested that a local chairman be elected to chair the meetings and to co-ordinate activities of the Committee and Ontario Hydro; however, this was not acted upon until the second meeting. Members of the public and media representatives were to be allowed to ask questions during the last half hour of meetings.

Following the presentation of background material and discussion of the Committee's role, a number of questions were asked and issues raised. These fell into four major categories: the need for scrubbers to reduce SO_2 emissions and lessen the formation of acid rain; employment of women and native people; the need for a road to the site; and alternatives to coal-fired generation including siting the station farther south to take advantage of wood waste as fuel. Requests were made for presentations at later meetings on two alternatives, burning of wood waste and hydraulic generation. One speaker felt that Ontario Hydro was being forced into participation against its better judgement and that development of the lignite should be set aside.

At the second meeting on May 20, 1980, Ontario Hydro presented two papers, "The electrical system in the northeast region", and "Hydroelectric potential, northerly flowing rivers". One member of the Committee asked for a cost comparison of an Onakawana generating station with hydraulic generation; Ontario Hydro agreed to do so after the full Committee passed a motion requesting the comparison. The issue of scrubbers came up again with Ontario Hydro stating it didn't know yet if they would be required. Local employment and job training were discussed with Ontario Hydro accused of being overly slow in providing the occupational training facilities of the area with job specifications and requirements, making it difficult for the institutions to begin their planning.

Three weeks prior to the third meeting on June 17, 1980, the socio-economic baseline inventory prepared by Environmental Applications Group (EAG) had been circulated for review. Unfortunately, the inventory reflected the problems that EAG had been warned against in 1978. The report stated that information,

> "...is primarily derived from official published sources such as Statistics Canada, and various other federal and provincial official sources. Where gaps in information existed, especially for small individual communities, attempts were made to procure information from other than official sources. However, consistent with the terms of reference, no formal process of contacting or interviewing local data sources was undertaken."[3]

Relying mainly on published sources created three major problems. First, many of the data were out-dated with heavy reliance on Statistics Canada's 1971 and 1976 censuses and DIAND data from 1947-1975. Second, using data for the entire Cochrane District did not describe the entire area accurately. The relatively large population of Timmins tended to skew the data, misrepresenting the rest of the District. Third,

availability of data restricted selected community investigation mainly to the larger, organized communities and Indian reserves. Data were usually available for Cochrane, Hearst, Iroquois Falls, Kapuskasing, Smooth Rock Falls and Timmins but not always for Moosonee or Moose Factory. The five inhabited Indian communities, Attawapiskat, Fort Albany, Kashechewan, Moose Factory and Winisk were mainly described through information supplied by the Department of Indian and Northern Affairs. The only data supplied for Moose River Crossing, the community closest to the proposed site, were the 1971 population and the 1978 Indian enrolment in its public school.

Division of the socio-economic baseline inventory into native and non-native sections reflected the differences between Indian and non-Indian communities but also contributed to some confusion. First, the term "native" was misleading since the greatest amount of documentation and exposition referred not to natives, i.e., people of aboriginal descent, but to status Indians living on reserve or Crown land. Second, information provided for Cochrane District as a whole included data on native people as well as non-natives since the District includes Indian reserves and towns with native populations.

Census data regarding unemployment were both out-dated and, for Moosonee and Moose Factory, unrealistic with unemployment rates (that is, the proportion of the labour force which is unemployed but available for work and has either looked for work within the last four weeks, has not looked for work but has been on layoff for less than 26 weeks, or has not looked for work but is starting a new job within four weeks) of 6.4 per cent and 2.9 per cent respectively. Community representatives have elsewhere estimated the unemployment levels (that is, the proportion of people of working age without jobs) for the combined communities at about 60 per cent. An attempt was made to update data using information from the monthly Labour Force Survey; however, these data were aggregated for the northeastern Ontario region, including Sudbury and Sault Ste. Marie and did not describe the local area. Canada Employment and Immigration Commission (CEIC) data from Kapuskasing and Timmins regional offices were obtained but these too, by definition, could not provide the whole picture; people who are unemployed but not registered are not included in the statistics. When EAG's baseline inventory was presented for discussion at the June 1980 meeting, the representative from Northern College was distressed that his organization had not been approached for information; Northern College had been collecting socio-economic data (including unemployment figures) for the last ten years.

Preliminary workforce estimates for the mine, generating station, transmission line construction and support camp staff were also presented at the June meeting. It was predicted that employment would

peak at 2100 in the fifth year of generating station construction, falling off to 520 employees required for operation after eight years.

Concerns were raised about the impact that a sudden influx of workers would have on the social services available in the communities. The question of trade unionism came up with a suggestion that perhaps the people of the north should form their own unions. A road to the site was discussed with Committee members divided as to whether it was needed or not.

The status of environmental studies was discussed and while final reports had not been made, some preliminary findings could be reported. The rivers in the vicinity of the site are low in productivity with no unique or sensitive fisheries resources. Water quality is high with low heavy metal and nutrient levels. Lakes are well buffered, indicating low sensitivity to SO_2 and NO_x emissions. Moose and caribou are uncommon with wildlife mainly limited to small mammals and furbearers. The Committee asked if the completed studies would be circulated and was told that they would be only if they were specifically requested.

In response to requests at earlier meetings, information was disseminated at the June meeting on the use of wood waste as a potential fuel for generation. One member of the Committee recommended that a three-stage boiler be used: in the first stage garbage could be burned; in the second stage, wood; and in the third, lignite to raise the steam temperature to the degree necessary for power generation. The Ontario Hydro staff answered that while such a boiler was technically feasible, it was not economically feasible, primarily because of the high costs of transporting low-quality fuel such as wood and garbage. It was also suggested that lignite could be freeze-dried and transported; the answer was that this procedure would be very expensive, difficult because of the crumbly nature of dried lignite, and potentially dangerous because of the hazard of spontaneous combustion with stored lignite.

A brief discussion ensued on SO_2 and NO_x emissions with Ontario Hydro stating that the Ministry of the Environment has no standards for emissions from the stack; instead standards are set for the point of impingement, that is, where the emissions hit the ground. The design for the Onakawana stacks included scrubbers, should they be needed, but it was Ontario Hydro's contention that need had not been proved. Neither were scrubbers specifically required by legislation. Including scrubbers would cost about another $150 per kilowatt. At Onakawana, with proposed generation of one million kilowatts, addition of scrubbers would cost $150 million.

A handout, shown here as Table 2, was available comparing the cost of energy produced from hydraulic, coal-fired and nuclear generation.

TABLE 2

ESTIMATED COST OF ENERGY FROM HYDRAULIC, COAL-FIRED AND NUCLEAR GENERATION

Generation	Average Annual Energy	Initial Capital Costs 1995$	Total Cost in mills/kwh		
			1995	2010	2025
Hydraulic	134.8 MW	$2800/kW	70	60	56
Coal-fired	1600 MW	1480/kW	69	122	262
Nuclear	2720 MW	1920/kW	47	55	88

Source: Ontario Hydro.

These comparisons were to be read with caution because of their simplified nature. It should be noted that while total costs were relatively low for nuclear generation, the cost of nuclear waste disposal was not included in the calculations. Hydraulic generation is not strictly comparable since it would supply only peak load rather than constant load.

The focus of the fourth meeting on November 18, 1980 was the results of environmental studies and their application to a generating station. The lignite mine, covering 2500 ha, would deliver to the generating station three to six million tonnes of lignite per year for 30 years. The generating station would include three 375 MW units for a total of 1125 MW. The generating station, coal handling and storage facilities, powerhouse and 200-metre stack, cooling pond, switchyard, waste treatment ponds and campsite would cover about 700 ha. Power would be transmitted 470 kilometres to Hanmer via 500 kV lines. The Onakawana River and Medicine Creek would be diverted. Approximately 1.5 cubic metres per second of water from the Abitibi River would be used for the cooling pond; water returned to the Abitibi River would be 12 to 15°C warmer than the river.

An overview of the study program concerning acid precipitation was also provided to the Committee. The studies undertaken included meteorology and air and water quality, evaluation of expected SO_2 and NO_x emissions and their compliance with regulatory standards, prediction of long-range dispersion and deposition, and assessment of emission control technologies.

A portion of the meeting time was set aside for airing of the Committee's concerns regarding the project. The major concern expressed was the effect of acid rain on the environment, humans, and agricultural land. The questions of the effect of dumping water into the Abitibi River, and how diversions would affect canoe routes were also raised.

The last SMLC meeting, on February 17, 1981 was concerned with the preliminary results of the social impact assessment prepared by Ontario Hydro. Annual average manpower requirements for the mine and generating station were presented with peak employment of 1580 in year five, declining to 440 by the end of the project. During the construction phase (years one to seven), local workers would comprise 35 per cent of the workforce, and approximately one-third of those would be native people. During the operations phase 45 per cent of the workforce would be local residents and a little over half of the local employees would be native people. Cochrane, Kapuskasing and Timmins could each expect a population increase of 150, Iroquois Falls and Black River-Matheson could expect 60, Smooth Rock Falls, 30. Secondary employment was expected to be small because of the remote site location, isolation of the construction workforce and the dispersed settlement of operational employees with one secondary job created for every 20 direct jobs. Disposable income spent within the Cochrane District could be 40 to 45 per cent during the construction phase and 80 per cent during the operating phase. Other development prospects in the region were listed as the Detour Lake gold mine, a phosphate mine southwest of Kapuskasing, Texas Gulf's base metal processing and Hearst's wood pelletizing operations. No mention was made of other mineral deposits in the area. No road would be built to the site since the railway was adequate for the delivery of goods and services to the project.

Several possible effects on the lifestyle and culture of native people were listed including "influx of people from up the coast" but no evaluation was done. Ontario Hydro asked if the Committee would like to meet with the Northern Municipal Liaison Committee (NMLC) and five of 11 said they would, that they would like to find out more about the "native lifestyle and culture" section of the impact assessment. It was agreed that another meeting would be held if sufficient interest were shown; however, Ontario Hydro received no further comments so scheduled no more meetings.

The Northern Municipal Liaison Committee

Set up with the same role envisaged as for the SMLC, the Northern Municipal Liaison Committee faced a stormier course. Members represented educational institutions, provincial ministries, one federal

department, the Moose Band, two Metis and non-status Indian organizations, the community of Moosonee, and tourism interests. Frequently referred to by Ontario Hydro personnel as the "Native Committee", about half the membership was of native descent and the elected chairman was the Moosonee Metis and Non-Status Indian Association representative.

Although representation had been invited from Moose River Crossing, residents of that community chose not to participate, setting out in a letter to Ontario Hydro their reasons for opposition to the project and recommendations should it go ahead:

> "The following presents some of the concerns of the residents of Moose River about the Onakawana Project.
>
> "First of all, we are somewhat cynical about studies of this kind. In the past we have noticed that after much local involvement in the decision-making process, big business and government have proceeded with the decision they had already agreed upon before the study took place. We are trusting that this is not one of those areas and that our efforts here are not wasted.
>
> "In regards to the project as it is presently set up, we can see very little of value being given to the James Bay area and nothing at all to Moose River. In actual fact, Moose River stands to lose in many ways. No one knows for sure the effect that the project will have on the wildlife in the area, but should the large game or geese be frightened from the area, an important source of food will have disappeared. With the amount of SO_2 that is to be dumped into the atmosphere, our clean, fresh-smelling air will be gone forever. To this add the effects of acid rain and the project does not seem at all appealing to us who live in its shadow.
>
> "The foregoing effects could be somewhat balanced out by the benefits you would bring to our community such as employment for our residents or a road link to the outside, but neither of these are firm project policies.

"Your insistence on a Grade X education effectively excludes all residents of Moose River now and for the foreseeable future. Even should this criterion be dropped, few native people are going to want to spend half their lives away from their wives and families as your policy of no families on the site would force them to do.

"We would like to make the following suggestions:
(1) Initially a road from Moose River should be constructed, or a shuttle service be provided. This would allow Native workers to use Moose River as their base and return to their families each day. Next, the section to Fraserdale should be completed and finally the section to Moosonee. A road will not only benefit us at present by bringing our cost-of-living down, but will provide jobs by bringing in tourists long after the project has ended.
(2) Employment practices must assure participation by Native workers. Dropping the formal educational requirements has already been mentioned. In addition, suitable training programs must be set up. These must take into consideration the Native learning style and be given locally, as most could not, for example, cope with a ten week course in Toronto. The work week must take into consideration the life-style of the local people, which places a great deal of emphasis on the outdoor life. Most would prefer to work long hours for several days and then have several days off to do as they please. There are several ways this could be arranged which we can discuss later.

"These have been a few of our concerns at present. We have others of which we will write later. If we can be convinced that this project will add to the quality of life and provide opportunities for employment in keeping with our basic values, then we would give you our support. At present we can see nothing to be gained and much to be lost and, therefore, no reason why we should not actively oppose your project."10

The Committee met six times between April 23, 1980 and March 25, 1981, alternating its later meetings between Moosonee and Moose Factory (See Appendix H). The same background material was to have been delivered to both the SMLC and the NMLC, but at the June 18 meeting after only one presentation had been made, several members of the NMLC expressed strong reservations about the project and its evaluation. Their main concern was that, unlike the SMLC members who they felt had more experience in evaluating probable consequences of large development, they needed time to educate themselves and the people they represented about the implications:

> "We're not ready for this. We've got to be educated. We've got to experience a little bit but not a large development like Onakawana. Give us ten years to adapt to development; give us time to organize ourselves, our communities; give us time to organize our education.
>
> "The area has never had industry before. We should start back at stage one and teach us what it will all mean and then go on. Let's learn the process. We want to know the base; we want to know the whole workings of a development like Onakawana. We should get the first-hand information that you [Ontario Hydro] already have about the process. We want the experience and background knowledge that you have."53

Representatives of the Moose Band and the Moosonee Metis Association requested that the records show their opposition to the project.

Members felt that too much technical information was being imparted too quickly for them to absorb. They suggested that instead of Ontario Hydro setting meeting agendas, the Committee should decide on what information it needed and set the agenda accordingly. It was decided that members would meet with their parent groups to consider what was needed on the next agenda, remain in contact with Ontario Hydro personnel, and meet again in September.

Eight Committee members attended the September 1980 meeting, each to give a brief presentation on the parent group's concerns. A respresentative of Grand Council Treaty #9 attending as a guest was also asked for his comments. The following are the parent groups and their concerns as expressed by their representatives:

Moosonee District School Area Board

Employment
- priority for jobs should be given to local people
- Government of Ontario has an obligation to provide job training in the area for local people

Road to the Site
- if one is built, construction should begin in Moosonee so that northern residents would benefit

Moosonee and Moose Factory Tourism Committee

Environment
- site visible from the railway tracks would disrupt what the tourism industry is selling: isolation, clean air, clean water, green grass
- reclamation of the strip-mined areas

Employment
- jobs for local people

Moosonee Development Area Board

Employment
- job training in the area for local people

Moosonee Metis and Non-Status Indian Association

Employment
- jobs for native people
- training in trades to allow for employment at the project
- acceptance of native people into unions

Cultural Discrimination
- outside influence
- indifference
- equal justice

Physical Environment
- contamination of rivers through release of discharges
- SO_2 emissions
- disruption of geese flyways and breeding areas

Social Environment
- influx of people from northern communities and its effect on education and health services
- danger to women with increase in the number of transient men

Environmental Assessment Act
- drafted by southerners for urban society, not for the northern environment

Ontario Ministry of Community and Social Services

Controls	- safety must be guaranteed - provincial and federal legislation (e.g., the Environmental Protection Act, Fisheries Act) must be enforced - project activities should be restricted to licenced areas
Media Coverage	- coverage of NMLC meetings should equal that of the SMLC
Community	- development of lignite should benefit the community

Grand Council Treaty #9

Environment	- should be protected
Decision-making	- need more involvement of people at the planning stages of development
Information-sharing	- many of the technical terms do not exist in the Cree language and are difficult to translate

Moose Factory Island School Board

Community	- resource developers have an obligation to return benefit to the community, perhaps in the form of a ten per cent levy
Decision-making	- communities should be telling the developers what training is necessary or what compensation is reasonable

Moose Band

Social Environment	- will be problems of adaptation when workers enter wage economy for the first time - influx of people from the northern reserves will place pressure on housing and health services
Physical Environment	- land is the main issue, sacred to native people

Northern Lights Secondary School

Education	- native students are taking a greater interest in higher education than formerly

The agenda for the next meeting was set for October 1980 to discuss the socio-economic baseline inventory. However, that meeting was cancelled to allow Ontario Hydro more time to consider issues and concerns that had been raised by the Committee but not addressed in the report. In November, the Committee met again to review the findings of the Phase II environmental studies and a summary on acid rain.

The last meeting, on March 25, 1981, was for the purpose of discussing the preliminary results of the social impact assessment. Once more problems ensued. When comments on the previous meeting's notes were requested, the member representing the Moose Band read a statement prepared by him and the member for the Moosonee Metis and Non-Status Association in resigning from the Committee on the basis that they would not,

> "...be utilized as rubber stampers and token representatives to justify the immediate preferences of the proponents to the Onakawana and Hydro development scheme in this decision-making process."24

Their specific complaints were that the cultural background of native people had not been acknowledged as a concern, the native members' views had not been seriously considered, questions asked had received no response or vague response, members were shown lack of respect by being termed radicals, native members' comments had been misreported, members were not given adequate time to examine reports prior to meetings but had to rely on summaries prepared by the proponents, and the public had been misled into believing that the NMLC and SMLC shared the same concerns. After the statement was read, the two members withdrew from the table but stayed as observers and one continued to participate in discussions on the preliminary results of the social impact assessment.

Towards the end of the meeting, the Moose Band representative read another statement reported to have been compiled by the Tribal Chiefs' Council and Grand Council Treaty #9. Its main points were that the James Bay people:

1. Reject all studies done to date on resource developments;

2. Demand a moratorium on all such projects;

3. Demand that the Government of Ontario:

   a) provide funds to native people to allow them to study the effects and impacts of resource developments on native people;

b) hold information seminars on the pros and cons of such developments;

c) establish a permanent body to liaise with native people and to monitor Government and corporate actions.

It was suggested that Ontario Hydro meet with the Tribal Chiefs' Council, Treaty #9 and the NMLC; Ontario Hydro agreed to consider such a meeting but did not commit itself to doing so.

On May 4, 1981, Ontario Hydro corresponded with the members who had resigned, defending its position:

> "In your position paper, you raised a number of points that I would like to address. Your assertion that Hydro does not acknowledge the concerns of the Native population, is not supported by our actions in this program. We had seven Native representatives on our Liaison Committees, and we also tried unsuccessfully to meet with the Tribal Chiefs to identify any additional concerns that they may have had regarding the study.
>
> "Due to time constraints, there was often no opportunity to review materials prior to committee meetings. This was unfortunate, and is not our normal procedure. The exception was the report on the Native Peoples Inventory, which was distributed three weeks prior to the June 1980 meeting at which it was reviewed. Local representatives have not provided comments on that report to date. Comments on the report were received by RCNE.
>
> "I agree with you that the two committees did have differing concerns. Minutes from each committee meeting were circulated to members of both committees to ensure each had access to the other's views.
>
> "We are sorry you were dissatisfied with the minutes. Through agreement with the committees, minutes were kept instead of transcripts because, in our experience, transcripts are too time consuming for people to read. It is our practice to begin each and every committee meeting reviewing the minutes of the previous meeting to ensure that all committee members have an opportunity to alter any part that may

misrepresent their position, or to add anything that may have been omitted. There certainly was no attempt to misrepresent anyone's views, and it was the responsibility of committee members to ensure, through this review process, that they are not misrepresented.

"Questions asked by committee members were answered on all occasions when answers were available. Some answers were not available at the time questions were first raised, but there was no intention of avoiding or ignoring questions."44

On June 3, 1981, Ontario Hydro received a letter from Grand Council Treaty #9 which stated,

"Grand Council Treaty #9 has always supported and upheld the principle that Native people must be given the opportunity to participate in the planning of their lifestyle at the highest possible levels and not relegated to an ad-hoc committee level. Therefore, the council supports the position and action taken by the two Native representatives in their withdrawal from the Northern Committee.

"Our Chiefs, Elders and other Native leaders in the various groups they represent, must be given the type of respect and representation accorded to Cabinet and other Deputy Ministers within this country. On March 24, 1981, the James Bay Chiefs met with me and members of my staff to discuss various issues relating to the James Bay area. The Chiefs supported a proposal submitted by Treaty #9 to secure and establish a viable forum whereby the Native people in the James Bay area can voice their concerns on resource development issues that will affect their future life-style.

"Discussions and negotiations are currently underway to pursue this mandate and, until then, the Grand Council will not be in a position to participate in future meetings relating to the Onakawana Development Corporation."9

There were no further meetings of the NMLC.

Committee Views of the Process

Although the Citizens' Committee members generally appeared to be satisfied with their involvement in the environmental assessment process, a number of criticisms were made.

1. Interest in participation declined, with attendance at the last meeting only 12, less than half of that at the first.

2. The Town of Cochrane sent representatives to only three of the meetings, the City of Timmins none. It was feared that strenuous municipal objection at a later date might nullify the decision reached by the Committee.

3. Ontario Hydro's information was complex and difficult to understand. Could it be simplified?

4. A trip to the site would have been informative.

5. A combined meeting of the different committees looking into separate aspects of the Onakawana project should have been arranged.

6. Committee members, earlier in the process, should have been allowed to meet and discuss without Ontario Hydro personnel present but available for clarification or explanation.

Not surprisingly though, the general feeling was one of accomplishment. The Committee had been assigned a specific task, analysed and evaluated complex environmental factors, made a firm recommendation on the route the transmission line should take and, perhaps most important, had its recommendation confirmed by the Ontario Hydro study team.

While the workings of the Citizens' Committee left both the members and Ontario Hydro satisfied with the results, the workings of the MLC's particularly the NMLC did not. What were the reasons? One answer is that unmet expectations caused disillusionment and frustration that hampered the proceedings.

Information-sharing proved to be problematic with unmet expectations on both sides. Committee members complained that background material was overwhelmingly voluminous and technical. It could neither be readily absorbed nor easily translated into concepts that the parent groups could understand. When Ontario Hydro prepared summaries, they were perceived, rightly or wrongly, to contain biases which members had neither the time nor the skills to refute. Ontario Hydro, for its

part, was also disappointed. Personnel were aware that its data, particularly for the coastal reserves, were inadequate and had hoped that the Committees would be able to help fill in the gaps. However, this hope was not met, primarily because the Committees simply did not possess the necessary resources of manpower, time, money or research skills. Ontario Hydro also perceived that Committee members were not conveying what they learned at meetings to the larger communities and felt obliged to hold Open Houses to disseminate findings, a job it had expected the Committees to fulfill.

Perhaps the highest expectation on the part of at least some of the members had to do with their role in the decision-making process. Input can run the gamut, from providing information to refine a decision, to actually making the final decision. Comments such as "We are going to be one of the major decision-makers on Onakawana" (NMLC, June 18, 1980) and "Maybe we should just be turning it [the generating station] down flat and stick to hydraulics" (SMLC, May 20, 1980) indicate that at least some of the Committee members were operating under the assumption that decisions were theirs to make. Yet if the role of the MLC's is examined, it becomes obvious that their function was to act as liaison, exactly what the name stated, in providing Ontario Hydro with information about and concerns of the communities of the area and disseminating what they learned from Ontario Hydro to the parent groups.

Some of the other members had feared all along that their participation would not result in their making decisions. Their fears were well-founded: the important decisions were made elsewhere, in this case in the boardrooms of Toronto.

THE ENVIRONMENTAL ISSUES AND THE DRAFT ENVIRONMENTAL ASSESSMENT

THE SOCIAL ENVIRONMENT

Local Employment

As far back as 1972 with the report of Task Force Onakawana, provision of employment had been seen as one of the prime considerations for approving exploitation of the lignite. The Ministry of Natural Resources' submission to Cabinet in May 1977 supporting ODL's request for a lease had stated that it was imperative that local people be given firm assurances that a significant portion of the employment opportunities be open to them. The Ministry of the Environment's Guidelines for the Onakawana Development specifically said,

> "The prime objective of this project as stated by the Government is to provide local, long-term employment with the least possible adverse effects."[17]

The level of employment in the area had not improved since then and one of the prime concerns of committee members was jobs for local people, both native and non-native. One resident went so far as to say,

> "The heart of the community wants work. They may even ignore acid rain for work, but if there is no work, they may not ignore acid rain."[52]

But there were obstacles to employment of local residents, particularly native peoples. First, a number of the prospective workers were poorly educated, ill-equipped to seek more than the lowest level jobs. Second, many workers lacked the specific skills that would allow them to enter the Onakawana workforce. Third, the few who possessed skills were often not union members and therefore would find it difficult to compete for the more desirable jobs.

The proponents cannot be held responsible for the paucity of academic background; the reasons are many and varied, including elements of cultural and social relevance, aspiration and opportunity. While institutions such as the James Bay Education Centre (JBEC) in Moosonee and Northern College in Timmins are already offering academic upgrading courses (Basic Training for Skill Development or BTSD), and local residents are taking them, the prospect of employment at a massive

development on the doorstep could have provided the impetus for larger numbers to seek further education. It would be up to the institutions responsible for education (by no means restricted to the schools) to ensure that the opportunity created by increased motivation was seized and acted upon. And it would be up to the individuals seeking to enter the industrial work world to prepare themselves.

For those people who had acquired an academic background, job-training programs would have been available through ODL, Ontario Hydro, and JBEC and Northern College. ODL had committed itself to employing as many local people as possible and planned two kinds of training programs to make that feasible. In the structured programs, such as for apprentices and equipment operators, classroom experience at JBEC and Northern College would be integrated with practical experience on the job site. ODL intended to employ a training supervisor to co-ordinate the on-the-job and institutional programs, and to conduct the on-site training for equipment operators. The second kind of training would be on-the-job experience with no classroom training required.

Ontario Hydro's job training would depend on the phase of work, construction or operations. For the construction period, Hydro's contribution to job training would entail living up to its commitments as set out by the written agreement between the Electrical Power System Construction Association (EPSCA), of which Ontario Hydro is a member, and the Ontario Allied Construction Trades Council. Under the terms of the Agreement, Ontario Hydro pays into the individual unions monies for apprenticeship and training programs. If Ontario Hydro decided, as it has at times in the past, to establish its own training programs, they would be funded by reducing contributions to the local union by an equivalent amount.

To ensure that highly skilled people are available for operation of a generating station, Ontario Hydro's Thermal Training Department conducts a lengthy training program. The minimum qualification for entry is grade 12 or its equivalent with an emphasis on mathematics and science. A candidate with two to three years' work experience is preferred. With minimum entry qualifications the course lasts six years; if a trainee has higher qualifications, (for example, as an electrician), he may enter the course at the third or fourth year level. Ten per cent of instruction is provided at the centralized training facilities in Toronto and 90 per cent on the job in an operating thermal generating station. A successful applicant from the study area would receive his training elsewhere with no guarantee that at the end of training he would be transferred to Onakawana.

At JBEC and Northern College, a number of training courses unconnected with the Onakawana project but nevertheless providing skills that could be marketable there were under way. BJRT (Basic Job Readiness Training), business and commerce, food preparation, carpenter general, heavy duty equipment mechanic, industrial maintenance machinist, inventory control, masonry, tractor trailer driver and welder fitter courses were offered to applicants having BTSD level three, approximately equivalent to grade ten. The courses, lasting from six to 48 weeks, are primarily funded through Canada Manpower. Apprenticeship programs taking two to five years were offered at Northern College, again unconnected with the Onakawana project but potentially valuable for employment there. They included electrician-construction and maintenance, heavy duty equipment mechanic, industrial electronic controls, and motor vehicle mechanic.

Programs specific to the Onakawana project could not be offered, partly because funding would not be available until project approval had been granted and partly because labour force requirement figures were not yet ready.* Northern College was aware that it would not be able to train dragline operators since it did not have the necessary equipment. Both JBEC and Northern College were eager to be involved in training programs for the project.

Committee members were concerned that there would not be enough lead-time to emplace training programs that would allow local residents first crack at the jobs. With estimates by the proponents that construction would begin two years after approval, potential workers could not be moved from an untrained level to trained within that time period. However, academic upgrading could be pursued and a begining made in specific job areas. With construction slated to last approximately seven years and operations another 30, one could expect that a significant number of local workers could be trained during the life of the project.

Fears were expressed that even when a worker possessed the necessary skills for employment, he might still be unable to get a job. The MLC's were reminded that when new government buildings were constructed in Moosonee, local tradesmen could not be hired as tradesmen because they were not union members. ODL saw little difficulty since the mine would not be unionized unless a majority of the employees

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* Although detailed information on labour force requirements and minimum entry level requirements was not included in the draft environmental assessment, Ontario Hydro released the information to the RCNE so that it might be made available to interested persons. See Appendices L,M,N.

wished it and, even then, union status would not be a condition of hiring. If the mine were to be unionized, an employee could become a member of the union after his probationary period had elapsed.

Ontario Hydro was in a different situation, bound by strict union agreements. EPSCA has a collective agreement valid until 1984 with the Ontario Allied Construction Trades Council, consisting of the following unions:

International Association of Heat and Frost Insulators and Asbestos Workers;

International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers, and Helpers;

International Brotherhood of Painters and Allied Trades;

International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America;

International Union of Operating Engineers;

Laborers' International Union of North America;

Operative Plasterers' and Cement Masons;

International Association of the United States and Canada; and

United Brotherhood of Carpenters and Joiners of America.

EPSCA is directed to notify the Council of all new generating station and transmission line (over 50 kV) projects and to convene a prejob conference before work commences. At the prejob conference, a geographic area from which to draw employees will be established. EPSCA will supply the local union office with a description of the work to be undertaken and the number of tradesmen and apprentices required. Union members resident in the geographic area will be referred by the union for employment. If the union is unable to supply sufficient manpower, the employer may then hire tradesmen and apprentices resident within the geographic area who must apply for union membership within seven days of employment. If manpower needs are still not met, tradesmen and apprentices from the nearest available location will be hired.

The setting of the boundaries of the geographic area is important to potential workers because that determines who gets first call for the jobs. The geographic area can be very large with hiring halls located as far away as Toronto and Thunder Bay (See Appendix O). Thus, rivals for a job would include workers in a large part of the province. Ontario Hydro held out the hope that the isolated nature of the Onakawana area would act as a deterrent to union members in more distant areas, thus opening up opportunities for local residents. Deterrence, however, would be greatly influenced by general economic conditions. In a climate like the current one where the nation-wide unemployment rate as of December 1982 was 12.8 per cent, (28.1 per cent for the construction industry), and the reporting of a significant number of layoffs is an almost nightly occurrence on newscasts, deterrence would be a slim thread on which to pin one's hopes. Yet it is likely that development of a low-grade fuel such as lignite would proceed only in a more buoyant economy, and the hope for distance as a deterrent might be more realistic.

Several suggestions were made as to how local residents might best compete for jobs with unionized workers, including guarantees of employment to local workers, exclusion of workers from outside the area, forming a northern union, and joining an existing union.

Ontario Hydro personnel replied firmly that no employer anywhere guaranteed employment to anyone, including the speaker himself. As to excluding workers from outside the area, there were two main issues. Unions had attained their rights in hard-fought struggles over the years and would not renounce them lightly; if the hiring halls were not utilized, the unions would likely stay out on strike until they were. Even if the possible repercussions on other Ontario Hydro projects under way were ignored, work at Onakawana would not proceed since there would not be enough qualified people to do it. The principle of excluding workers from outside was also discussed, with community representatives taking two positions. On one hand, the people in the immediate area would be those most affected by the environmental disruption that would ensue and should therefore reap the most benefit in terms of employment. Opposed to this viewpoint were those who felt that in this country citizens have the right to go where they wish and that infringement of that right is not acceptable.

Although formation of a northern union would appear to be a creative approach, it would pose major difficulties. Calling a group a "union" does not guarantee that the existing unions would see it that way and respect its authority. Of more immediate relevance in the Onakawana situation, EPSCA's collective agreement with the Ontario Allied Construction Trades Council explicitly states,

> "EPSCA recognizes the Council as the exclusive bargaining agency...for employees...engaged in all construction industry work performed in the Province of Ontario on Ontario Hydro property for the bulk power system..."[2]

The Council's authority as bargaining agent could, theoretically, be overturned but only by application of an employee, whom the Council represents, to the Labour Relations Board. The Board would determine the wishes of the membership and if more than 50 per cent voted in opposition, the bargaining agent and the collective agreement would be terminated. Such a scenario appears extremely unlikely.

Joining an existing union also has inherent difficulties. First, most of the local people lack the necessary certification of skill required by the construction trades unions. Second, without much in the way of past participation in unions, they lack the personal and familial contacts which can ease the way into being accepted. Third, unemployment in the construction sector is high and unions are not eager to add still more competition for the few jobs available to current members.

Is there, then, any way in which local residents might be helped to take advantage of job opportunities that open up? Affirmative action programs are being actively sought by the Canada Employment and Immigration Commission (CEIC) with a target population of women, the physically disabled and native people. If a company indicates interest, CEIC seeks a commitment from senior management and includes management, staff and the relevant union or unions in negotiations. To date there has been little success in generating interest in affirmative action programs for native people. One company that did begin planning was Kimberly-Clark of Canada Ltd., at Longlac in January 1981. Union agreements regarding selection, training and advancement of employees would have to be adhered to on the basis of union membership, seniority and qualifications. CEIC was requested to survey the number of employable native people in the surrounding communities to seek out the necessary support services. Unfortunately, the program has been on hold since a fire in November 1981 destroyed the pulp mill, disrupting pulp and forest product operations.

The Ontario Government's affirmative action programs are directed primarily towards solutions of women's problems in employment. The Ontario Manpower Commission intends to include native peoples in its work at some future date but has no definite timetable.

Other jurisdictions have had more success in implementing local employment programs. One such example is the Surface Lease Agreement entered into between Amok Ltd. and the Government of Saskatchewan in 1978. The Agreement stipulates that by 1982 50 per cent of the operational (but not administrative or professional) staff must be northern residents and that they will be distributed throughout the widest possible range of job classifications. "Northern resident" is defined as a person who has resided in the Saskatchewan Northern Administration District, La Ronge, Creighton, or Uranium City for 15 years or half his life. In practice this means that 95 per cent of the northern residents are native people. Amok Ltd. is directed to take all steps necessary to meet the provision including the following:

a. Preference for northern residents in the placement and advancement of employees;

b. Special recruiting measures; and

c. Special training, counselling and other support.

Specific measures are spelled out further in the body of the lease:

1. Filing of a yearly employment plan with the Minister of Mineral Resources to include an analysis of job descriptions to ensure that qualifications are job-related, the positions to be occupied during the next year, the number to be filled by northern residents, recruitment undertakings to be adopted, staff promotions, and training and support measures to be undertaken;

2. A work schedule allowing one week's work followed by one week's rest;

3. Free air transportation for commuting workers between the mine site and a minimum of five bases in the Northern Administrative District;

4. A pilot project in at least one northern community to train northern residents to qualify them for employment, with the community committed to providing an agreed number of employees;

5. Training programs to include orientation and "technical courses to provide such employees or potential employees with the basic skills and knowledge required for the proper performance of their duties and for promotion to more highly skilled positions, better paid positions, or more desirable positions, including supervisory positions";

6. Apprenticeship training for those qualified if a journeyman is available;

7. A scholarship fund to northern residents for advanced training as tradesmen, technicians, nurses, administrators, etc.;

8. At least one native-speaking employee to act as liaison with senior management and to provide general vocational counselling to native employees;

9. Six-days' notice to provincial and federal agencies of a new or vacant position not filled by promotion of a northern resident;

10. Recruiting personnel to make regular visits to base points in the Northern Administrative District;

11. All contractors hired by Amok to comply with the recruitment requirements;

12. A Monitoring Committee of three to five members appointed by the Minister and including one member nominated by Amok and one member nominated by the northern resident employees to meet twice a year to review, evaluate and make recommendations regarding the northern resident employment program; and

13. Amok to implement recommendations if they are practical, reasonable and consist of a specific act or series of acts.

Although the mine is not unionized, Section 20 of the Agreement specifies that if a collective bargaining agreement is entered into, the terms of the collective bargaining agreement will prevail if conflict arises.

Another section is devoted to company support of local businesses with first preference for purchase of goods and services to businesses in northern Saskatchewan. Amok is to file an annual report of all contracts for goods and services awarded to northern businesses and the aggregate value of such contracts.

Prior to signing the Agreement, Amok had voluntarily undertaken initiatives for employment of native people and felt that consequently the Agreement only confirmed and specified the company's intentions. It should be noted, however, that the provisions for northern employment were required for granting of a lease.

The Agreement contains provisions that if used in northern Ontario could well improve opportunities for local employment. It is time that developers and governments begin working together to ensure that innovative measures are not excluded when development in the remote areas of this province is being planned.

Ontario Hydro did not spell out clearly, either through presentations to the Citizens' Committee and the Municipal Liaison Committees or in the draft environmental assessment, its recognition that it both could and should play an important part in local employment and job training. However, the issue was addressed in a background paper prepared for the environmental assessment recommending several actions to be undertaken, among them the following:

1. A labour supply analysis to determine the qualities of the local labour pool and to forecast shortages;

2. A skills inventory of Moosonee/Moose Factory and the coastal communities;

3. A review of the training programs with respect to local recruitment, placement at northern generating station sites, and skills development of the local labour pool;

4. Skills training programs to take full advantage of local facilities such as JBEC and Northern College;

5. Evaluation of the project with a working party of native people in a round-table discussion setting;

6. Appointment of a local resident to act as liaison in Moosonee/Moose Factory to keep native people fully informed about training programs;

7. Documentation of a project training program showing the distribution of federal, provincial and private assistance;

8. Formation of a co-ordinating committee comprised of Ontario Hydro, ODL, and federal and provincial ministries to provide adequate lead time for planning;

9. Involvement of Ontario Hydro, ODL, the various construction unions, Canadian Union of Public Employees, the Ministries of Labour and of Colleges and Universities, and the Canada Employment and Immigration Commission in planning training programs; and

10. Development of additional training programs to avoid local labour shortages.

These recommendations could not be acted upon because Ontario Hydro's participation in the Onakawana project was terminated (and might not have been acted upon in any case); nevertheless, they do show Hydro's awareness of the need for action on its part.

Native Concerns

Although the population of the Cochrane District was described as 91.4 per cent English or French and 2.1 per cent native Indian in the draft environmental assessment, these figures do not describe the three communities closest to the site, Moose River Crossing, Moosonee and Moose Factory. Using even very conservative calculations, the communities, as shown in Table 3, contain a significant number of native people.

TABLE 3

NATIVE POPULATION OF MOOSONEE, MOOSE FACTORY AND MOOSE RIVER CROSSING, 1979

Community	Population 1979	Status Indian Population	Metis or Non-status Indian Population	Total Native Population
Moosonee	1301	?	391	391+ (30.1%+)
Moose Factory	1436	867	388	1255 (87.4%)
Moose River Crossing	90			86 (95.6%)
TOTAL	2827	867+	779	1732 (61.3+)

Source: References 1, 12, 21.

The native people were particularly fearful of the effects of development at Onakawana. While their concerns included those of other groups, such as opportunities for local employment, issues with cultural components also arose. The following comments were typical of remarks made by native people. Native people have relied on the goose hunt for generations. Tall stacks, pollution and increased activity will affect the bird population. No one knows for sure what the effect will be on other game in the James Bay area. Native people entering the wage economy will have difficulty adapting to suddenly having large amounts of money. There will be an increase in crime and the possibility of sexual harassment of young women by transient workers. Large development is new to the area and the native people lack the knowledge and experience to understand its consequences. "What it really breaks down to is that land is the issue. The land is very sacred to us. If we don't drive stakes into our land, we'll lose our land, our culture, everything."[53]

These concerns were by no means new, having surfaced on many other occasions. Native people also questioned the ability of the Environmental Assessment Act to deal with issues affecting them closely. In a letter of January 9, 1978, to Grand Council Treaty #9, the Minister of the Environment responded in an attempt to allay their fears:

> "In fact, the Act's definition of environment to include the social, economic and cultural conditions that influence the life of man or a community ensures that the environmental assessment of any undertaking affecting the Treaty 9 area would be required to identify and evaluate effects on the Ojibway-Cree people and their way of life."15

Since the Onakawana site lies within the boundaries of Treaty 9, it would be reasonable to expect that an environmental assessment of the Onakawana project would examine carefully the effects on native people. However, such was not the case. Approximately two pages of a 37-page section of the draft environmental assessment entitled "prediction of the socio-economic effects of the undertaking" dealt with native people. This scanty apportionment reflects both the general difficulty of obtaining information about a large and complex issue such as the effects of development on a population with vastly different cultural values and history and, more specifically, the poor record of native participation in the Onakawana environmental assessment.

Regional Development

One of the major reasons behind the push for exploitation of the lignite resource was improvement of the economic climate of the northeastern region of Ontario. The Ministry of Natural Resources' submission to Cabinet in 1977 suggested that one reason Onakawana development had not occurred prior to then was that,

> "To date all economic analyses have treated development at Onakawana in isolation. They have not taken into account the multiplier effect that such a development could have on the economy of an underdeveloped region of the Province and, indeed for Ontario itself...
>
> "Additionally, little attention, if any, has been given to the real potential for stimulating other development in the area. For instance, there are substantial deposits of other

> industrial minerals within the same Cretaceous Basin which require significant amounts of energy for processing, including high grade limestone for cement, and fireclays and kaolin for factory products. And it is quite reasonable to suppose that development of Onakawana could spark a series of developments throughout the area. Also, provided the mineability was proven economically sound, the impetus that could be generated for further coal exploration and development in the Basin by the private sector might well be significant."[22]

Although neither ODL's lease nor the Ministry of the Environment's Guidelines for the Onakawana Development required that regional development be addressed by the proponents, members of the public committees were of the opinion that it should, citing the same factors as the Ministry of Natural Resources, and also questioning how benefits and costs might be compounded by simultaneous development at the Detour Lake gold mine.

The proponents' view, however, was that regional development is properly a government responsibility, not that of a mining company or an electrical utility company; their consideration of regional development in the draft environmental assessment was limited mainly to the project's impact in isolation. While the potential that Onakawana development might have for encouraging exploitation of other minerals was mentioned, possible synergistic effects were not examined. Only in reference to a forecast population influx associated with the Detour Lake development was a combined effect intimated.

Transportation

In 1975 the Ministry of Transportation and Communications studied the feasibility of a Moosonee access road and put further study on hold for two reasons: how and where development would occur was unknown, and the people of the area were divided in their opinions as to the need for or desirability of access.

During the Onakawana studies three variants on the theme of a road to the site were raised. First, a road from Smooth Rock Falls to Onakawana would assist regional development. Second, a road from Moose River Crossing to the site would allow people from Moose River Crossing to commute to work. Third, if a road were to be built, construction should begin at Moosonee to allow that area to benefit from the

economic advantages of construction. The public was still divided as to whether a road should be built, with those in the more southerly area expressing their strong desire for a link and native members stating their firm opposition. In between were those who favoured a road but only if a majority of the people approved.

Since the Ontario Northland Railway would meet the transportation needs of Ontario Hydro and ODL, the proponents decided against pushing for road construction and the question of road access remains with the provincial Government.

Other Social Environmental Issues

A number of other concerns were raised by residents of the area, among them the impact of an increased population on communities already lacking sufficient services. There were two aspects to this concern, first, effects that could be expected from a movement of outside workers into the area, and second, migration of workers from the northern reserves into Moosonee, Moose Factory and Moose River Crossing. The draft environmental assessment considered the effects of a population increase on the southern communities of the study area due to outside workers. It assumed, however, that outside workers would be unlikely to settle in Moosonee or Moose Factory and there was little likelihood of a population increase in these communities due to movement from outside the area. A migration from the northern reserves was dismissed as an area of study with the statement that "Since this movement would be internal to the study area, no population influx was attributed." Thus, while the first facet of the concern was addressed in the draft environmental assessment, the potential adverse effects of movement within the study area were left unaddressed.

Concern was expressed by the public about financial relief for communities hit by increased costs. While communities could realize larger revenues from an increase in population, they could also face extra costs for expansion of services and infra-structure. Since the development would be situated outside municipal boundaries, ODL's taxes would be paid directly to the province and communities requiring assistance would have to approach the province for additional funds. Ontario Hydro stated in the draft environmental assessment that it had signed agreements with municipalities on other projects in the past to relieve costly impacts and that "Community Impact Agreements will be negotiated with the affected community if the project goes ahead." However, "the affected community" was not specified nor was there any indication that more than one community might be considered.

Local businesses asked to receive some of the benefit to be derived from increased purchasing for the project as well as by its employees. However, Ontario Hydro held out little prospect of large amounts being spent in the local region; the specialized nature of equipment needed would tend to limit suppliers to established firms in other areas.

The area to be mined impinges on two traplines and the proponents were prepared to offer compensation to the trappers involved. A cash compensation would be negotiated with them based on documented returns and the future market value of furs not harvested. The draft environmental assessment stated also that "Trappers affected by project development will be invited to participate in worker training and employment programs." The question of whether dollars and retraining are a satisfactory form of compensation to people whose entire lifestyle would be disrupted was not discussed further, nor was the appropriateness of this type of compensation to people lacking both facility with the English language and prior schooling.

Potential difficulties around money matters were seen. It was expected that a boom atmosphere would prevail with higher costs for food and housing. While those finding employment would be able to afford increasing prices, people without jobs (for example, those living on pensions or welfare payments) would be severely disadvantaged. Workers entering the wage economy for the first time were also seen to be facing some risk. The sudden possession of relatively large amounts of money without an equal gain in the skills of money management could lead to problems ranging from increased alcoholism to disruption of the extended family.

Members of the Northern Municipal Liaison Committee had raised the possibility of providing power from an Onakawana generating station to Moose River Crossing. In 1976, the Ontario Government had announced a program to provide Ontario Hydro with capital funds for diesel generation or extension of transmission lines to unserviced communities with a minimum of 25 year-round customers. In response to an inquiry from the Provincial Secretary for Resources Development and not as part of the environmental assessment, Ontario Hydro personnel visited Moose River Crossing in June of 1980 to determine if the community were eligible for service under the program, finding 17 residences, one school plus a five-room apartment, three commercial buildings owned by the ONR, and one summer camp--just short of the required 25 customers. Ontario Hydro's conclusion was:

> "Based on our experience to date, it is evident that this 25 limit is well below the point at

which our involvement becomes economic, relative to supply from plants owned and operated by the local residents.

"Regretfully, therefore, we do not plan any further action with regard to electric service at Moose River Crossing for the present."38

The people of Moose River Crossing could, with some justification, make a case for being in a different position than other remote northern communities. As theirs is the closest community to the proposed generating station, in sight of the stacks, they might well view themselves as entitled to further consideration. However, the draft environmental assessment did not address provision of electricity to Moose River Crossing.

THE PHYSICAL ENVIRONMENT

Acid Precipitation

The spectre of acid precipitation resulting from lignite combustion at an Onakawana generating station was raised by people on both the Northern and Southern Municipal Liaison Committees. Because of the interest expressed, Ontario Hydro addressed the issue directly at meetings in the fall of 1980 with a fact sheet prepared by the Ministry of the Environment and an overview of studies undertaken by Hydro in conjuntion with the Onakawana development. Ontario Hydro's studies were reported as including:

"1. On site baseline environmental data collection such as wind, temperature, ambient air quality, rainfall chemistry, etc.

2. Evaluation of sulphur dioxide and nitrogen oxide emissions from the proposed station to ensure compliance with regulatory standards for air quality.

3. Prediction of the long range dispersion and deposition of these emissions and the environmental effects of additional acid loadings due to deposition on sensitive receptor areas.

4. Identification of sensitive receptor areas that may be affected by acid gas emissions.

5. Assessment of alternative emission control technologies for possible future more stringent requirements."[41]

Ontario Hydro's comments during public meetings regarding SO_2 and NO_x emissions indicated that it expected these emissions to be relatively insignificant when compared to the background loading from other sources. During one meeting in the fall of 1980 it was explained that SO_2 emissions from an Onakawana generating station would be about five per cent of Inco's output. Five per cent appears to be a relatively minor addition until one recalls that Inco has been described as the world's largest single source of SO_2. And is the five per cent estimate correct? If we examine Hydro's estimates in the draft environmental assessment of 85.7 kilotonnes of SO_2 and 14.5 kilotonnes of NO_x emitted, we see that Onakawana SO_2 emissions are more than five per cent of Inco's. Table 4 shows that Onakawana's SO_2 emissions as a percentage of Inco's would be 10.6 per cent and 13.3 per cent respectively for 1981 and after June 1983 when Inco cutbacks would come into effect.

TABLE 4

COMPARISON BETWEEN ONAKAWANA'S EXPECTED SO_2 EMISSIONS AND INCO'S 1980 AND ALLOWABLE 1983 SO_2 EMISSIONS

Source of Emissions	SO_2 Emissions in Kilotonnes	Onakawana SO_2 Emissions as Percentage of Inco's
Projected Annual from Onakawana	85.7	
Inco, 1980	812.1	10.6%
Allowable Inco, 1983	645.7	13.3%

Source: Ministry of the Environment and Reference 32.

And how would emissions from Onakawana compare with Ontario Hydro's total output now and in the future? Ontario Hydro has been directed by the Ministry of the Environment to reduce its emissions: SO_2 from 418 kilotonnes in 1981 to 390 by 1985 and 260 after 1990; NO_x from 71 kilotonnes in 1981 to 60 by 1985 and 40 after 1990. As shown in Table 5 an Onakawana generating station would be contributing 20.5 per cent, 21.97 per cent and 32.96 per cent of Ontario Hydro's 1981 SO_2 emissions and allowable SO_2 emissions in 1985 and 1990. The comparable figures for NO_x would be 20.4 per cent, 24.2 and 36.3 per cent.

TABLE 5

COMPARISON BETWEEN ONAKAWANA'S EXPECTED SO_2 AND NO_x EMISSIONS AND ONTARIO HYDRO's EXPECTED 1981 AND ALLOWABLE 1985 AND 1990 SO_2 AND NO_x EMISSIONS

Source of Emissions	SO_2 Emissions in Kilotonnes	Onakawana SO_2 Emissions as % of Hydro's	NO_x Emissions in Kilotonnes	Onakawana NO_x Emissions as % of Hydro's
Projected Annual from Onakawana	85.7		14.5	
Expected Hydro, 1981	418	20.5%	71	20.4%
Allowable Hydro, 1985	390	22.0%	60	24.2%
Allowable Hydro, 1990	260	33.0%	40	36.3%

Source: Ministry of the Environment and Reference 32.

In Ontario Hydro's overall picture for coal-fired generating stations in 1981, Table 6 shows that Onakawana would place third in SO_2 emissions and second in NO_x emissions.

TABLE 6

ONAKAWANA'S EXPECTED SO_2 AND NO_x EMISSIONS AND ONTARIO HYDRO'S ESTIMATED SO_2 AND NO_x EMISSIONS FROM COAL-FIRED GENERATING STATIONS, 1981

Generating Station	SO_2 Emissions in Kilotonnes 1981 Estimates	NO_x Emissions in Kilotonnes 1981 Estimates
Nanticoke	181.0	42.0
Lambton	154.0	13.0
Onakawana	85.7	14.5
Lakeview	63.2	12.0
Thunder Bay	8.7	2.1
R. L. Hearn	5.5	1.0
J. C. Keith	4.0	.7
Lennox	1.1	.2

Source: Ontario Hydro.

The Environmental Protection Act sets out criteria for 84 contaminants, including SO_2 and NO_x, at the point of impingement (POI). The Act provides a complex method of calculating the concentration of a contaminant at the POI, taking into account the rate and temperature of the emission, wind speed and direction, height at which the point of emission is located, atmospheric stability, and horizontal and vertical dispersion of the contaminant at the POI. Assuming full load operation, low quality fuel, no sulphur retention in the ash, and a 220-metre stack, maximum POI (6.3 kilometres downwind from the station) concentrations predicted were considerably lower than the Ministry of the Environment's criteria as seen in Table 7.

TABLE 7

COMPARISON OF ONAKAWANA'S EXPECTED SO_2 AND NO_x CONCENTRATIONS AT THE POINT OF IMPINGEMENT AND ONTARIO STANDARDS

Contaminant	Ontario Criteria for Concentration at POI Half-Hour Average (Micrograms/m^3)	Predicted Onakawana Concentration at POI Half-Hour Average (Micrograms/m^3)	Onakawana Concentration as % of Ontario Standard
SO_2	830	270	32.5%
NO_x	500	27	5.4%

Source: References 7, 32.

Short-term exceedances of the SO_2 criteria were calculated using two models, both indicating potential for exceedances for a one-hour averaging period, but details were not provided. To ensure that effects on local air quality would be minimized, Ontario Hydro stated that further evaluation would be necessary:

> "This may include changes in stack design parameters. An air quality monitoring network will be established to monitor local air quality throughout the operating life of the station. Additional control measures will be initiated if exceedances of air quality criteria are measured."[32]

Concern had been expressed about the effects of long-range transport of pollutants since it is the chemical reaction occurring over time and in the presence of sunlight that converts SO_2 and NO_x into acidic compounds. It was Ontario Hydro's contention that the major source of SO_2 in Ontario is from industrial areas of the United States and that an increase arising from an Onakawana generating station would be insignificant. As well, since the power produced at Onakawana would reduce the necessity for generation at other stations in the south, acid depositions in southern areas could be expected to decrease slightly. Northern regions could expect an increase of less than 10 per cent.

Sensitivity to acidification of lakes depends on their buffering capacity as determined by size, depth, turnover rate, and geology of the watershed, and existing alkilinity or acidity. The draft environmental assessment projected increased acid loadings due to an Onakawana generating station on sensitive or potentially sensitive areas in the Algoma, Timiskaming and Laurentian areas, concluding that, "the operation of the Onakawana generating station is not expected to cause a significant increase in the rate of acidification of lakes in the study area." Sensitive receptor areas shown on a map in the draft environmental assessment, however, were not clearly identified as to location; those in the northern Algoma region appeared to be close to Lake Abitibi, east of Lake Nipigon and somewhere south of Kapuskasing. Lakes in the Hudson and James Bay Lowlands were described as having "a relatively high buffering capacity due to the calcareous nature of the soils in that area. However, information on lake chemistry in the lowlands and northern portion of Ontario and Quebec is very limited". It must be noted that northern Quebec, which is downwind from Onakawana, lies within the Canadian Shield and not in the Lowlands and is therefore more at risk from acid deposition.

The draft environmental assessment presented a table depicting the relative sensitivity of agricultural crops (of which there are none in the Onakawana area) and trees to SO_2. Unfortunately, the trees listed included many not found in the study area (e.g., Douglas fir, red oak, sugar maple) and excluded all but a few that are, trembling aspen and white birch (sensitive), balsam fir (intermediate), and balsam poplar and white spruce (resistant). The most notable exclusion from the table was black spruce, although the text said: "White spruce (and probably black spruce) are considered resistant."

Although Ontario Hydro is of the opinion that a need for removal of SO_2 from emissions has not been established and has not included scrubbers in its plans, it has investigated alternative methods should retrofitting be required. The best developed and most economical technology is the limestone wet scrubbing process in which the flue gas is

washed with limestone slurry, SO_2 combines with the limestone to produce calcium sulphate and/or sulphate precipitates, and reaction products are disposed of as waste. Two problems arise with this process, the source of limestone and the disposal of waste. Limestone is available at three locations within 55 kilometres of the site, two of them on the railway. Waste produced would be approximately 360,000 tonnes per year, about half the quantity of ash produced. After processing, it could be disposed of as backfill with the ash or built up to form a gypsum stack. The limestone wet scrubbing process would be expected to have a maximum SO_2 removal efficiency of about 90 per cent. Lime spray drying uses atomized lime slurry in which SO_2 is absorbed and heat from the stack evaporates the water. Dry reaction products are removed with the fly ash by electrostatic precipitators. This method has not yet been proven commercially. With furnace injection of limestone, limestone is mixed with the fuel before it is fed into the furnace. SO_2 combines with the limestone to form solid calcium sulphate which can be removed with the electrostatic precipitators. This method has shown promise in Germany but would require further testing before its usefulness at Onakawana could be demonstrated.

To lower NO_x emissions, the proposed boiler at Onakawana would use a tangential fuel injection system which is a low NO_x producer. As well, the high moisture content of the lignite, low flame temperatures and flue gas recirculation would contribute to reduced NO_x emissions. New burners are being developed which may produce NO_x emissions below current levels; however, these would not necessarily be used at Onakawana.

Ontario Hydro stated that alternatives, including atmospheric emission controls, might undergo further analysis and that "Any such revision will be reviewed in detail with the Ministry of the Environment before the design is finalized".

Water

The water resources of the area were thought to be at risk from sources other than the stack emissions of the generating station. The Onakawana River and Medicine Creek, lying over the lignite reserves as they do, would have to be diverted to provide access to the coal without fear of flooding the mine. The Onakawana River would be diverted south of the mine site into the Abitibi River, 23 kilometres above their present confluence. Medicine Creek would be re-routed around the northwestern perimeter of the site, emptying eventually into the Onakawana River.

ODL gave its reasons for making these diversions permanent in the draft environmental assessment:

"- the cost of re-connecting the Onakawana River will be substantial

- the addition of Onakawana River discharge to that from Medicine Creek and the mine site into the downstream channel of the Onakawana River, would be greater than pre-mining flows; and would thereby increase erosion potential and decrease water quality

- a significant, but presently unpredictable, amount of channel erosion and sedimentation can be expected to result from construction and initial utilization of a new channel of the length necessary to re-connect the Onakawana River

- the effects of failure (on an indefinite time scale) of the diversion drop structure are considered massive and unacceptable, but the risk of failure in the near term (period of operation) is negligible since periodic inspection and maintenance will identify and remedy potential effects. The risk of failure in the long term would also be negligible if periodic inspection and maintenance were carried out. However, since the proponent will ultimately abandon the site, inspection and maintenance can only be guaranteed by the Government of Ontario, who must determine the provisions or bonds to be provided to them by the proponent."32

Although fish habitat in the two water courses is relatively poor, consideration was given to construction of a passage for fish through the diversion channel. The canoe route on the Onakawana River would be disturbed, requiring a portage to the Abitibi River.

Water pollution could occur by two means, through chemical runoff from the mines and through heating of the water used for cooling the generating station. Surface runoff, muskeg drainage and mine pit drainage would be collected in a series of drainage and interceptor ditches. From there they would enter one of three settling ponds, remaining for a minimum of one to two weeks prior to release into the natural waterways. Since muskeg drainage water is similar to samples from Medicine Creek (slightly higher in sulphate, considerably higher in suspended solids), no problem was foreseen in treating surface runoff and muskeg drainage this way. Mine pit drainage would be tested and treated if necessary before release into the waterways.

The Abitibi River would be used in one of two fashions to cool the turbines of the generating station. Plan 1 calls for a cooling pond with a depth of 4 metres, a volume of 18,000,000 cubic metres and a surface area of 450 ha, which should be sufficient to maintain a temperature of 30°C in summer and 10°C in winter through evaporation. Exchange with Abitibi River water would take place both during blowdown and the makeup of water losses from evaporation. Maximum blowdown would be .25 m^3/s and maximum makeup (in July) would be .845 m^3/s. This would be a small proportion of the river water since the average daily flow of the Abitibi River (as measured between 1959 and 1979) ranged between 85 m^3/s in August and December and 650 m^3/s in June. July's average daily flow was 280 m^3/s. The extreme minimum daily flow was 20 m^3/s.

An alternative method is once-through cooling using the Abitibi River; water is taken from the river, passed through the cooling system and then is returned to the river. This method is less desirable since it would interfere with hydraulic generation at Otter Rapids, 50 kilometres upstream, and possibly with a potential development at Blacksmith Rapids. However, Ontario Hydro has said

> "...it is important to note here that once-through cooling alternatives using the Abitibi River cannot be eliminated for technical or environmental reasons at this time."[32]

If the once-through cooling system were to be used, flow extraction would be limited to 15 per cent of the river flow and river temperature rise limited to 2°C.

Wildlife

It was feared that the noise and activity of the development would frighten away animals important as furbearers or food source. The proponents felt that because of the relatively sparse population of wildlife in the area, no great impact would be felt. Further, they expected that the increased amount of open water and more varied terrain to be expected after reclamation would enhance the habitat and lead to its greater utilization. As noted earlier, compensation would be considered for trappers affected by the development.

The effects of development on Sandhill cranes and wild geese were specifically mentioned. Sandhill cranes, thought by some residents to be an endangered species, were estimated at 69 breeding pairs in the

1000 square kilometres around Onakawana. The cranes are not on the endangered list but because of range contractions throughout North America are considered to be potentially sensitive to mining development. Geese do not nest in the area but do migrate through it, and it was feared that tall structures could cause them harm. Ontario Hydro reported that the installation of strobe lights elsewhere has worked well in preventing death to birds and could be expected to do the same at Onakawana.

Reclamation

Cognizant of the great amount of damage to the land caused by strip mining, people wanted reassurance that procedures would be taken to return the land to as usable a condition as possible. ODL appeared to take its responsibilities for reclamation seriously, first considering what a reasonable goal would be. The company identified two main objectives: wildlife, waterfowl and aquatic habitat development and recreational development for boating, canoeing and camping.

To achieve these goals, reclamation was to be an ongoing process beginning in the early stages of development. The overburden was to be stripped and placed in spoil piles prior to excavation of the lignite. After mining of a section was completed, the trenches would be backfilled with ash from the generating station and stored overburden. Spoil piles would be bulldozed to a slope of 10° or less and contoured to provide gently rolling land. The end pits, two in the Main field and one in the East field, would form deep lakes receiving water from Medicine Creek and emptying into the Onakawana River. Shallow lakes and ponds would be expected to form an interconnected series in the valleys created by excavation and spoil pile levelling. Revegetation would occur in two phases: in the short term, grasses and legumes would be planted to provide rapid cover; after mining was completed, native shrubs and trees would be used to establish permanent cover. The draft environmental assessment did not specify how much of the revegetation would be achieved through agricultural methods and how much through natural regrowth.

Pesticides

Questions had been asked about herbicides used by Ontario Hydro and their effect on the environment. During one meeting, Ontario Hydro stated that it was no longer using 2,4,5-T or 2,4,5-TP and agreed to prepare a statement on pesticide policies; however, this statement was not prepared. In the draft environmental assessment, Ontario Hydro stated,

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> "In its land management programs, Hydro uses the following types of pesticides: insecticides, fungicides and herbicides. Pesticides used are registered and applied in accordance with controls imposed by federal and provincial legislation and by Hydro itself."32

and further,

> "The use of herbicides in vegetation control does not have any known long term effects on fish and wildlife."32

There was no further discussion of the use or effects of pesticides.

THE DECISIONS AND THEIR AFTERMATH

THE ENVIRONMENTAL DECISION

More than two years after beginning studies on the environment and the effects that could be anticipated to accrue from development of the Onakawana lignite, ODL and Ontario Hydro completed their draft environmental assessment in August 1981. The conclusion:

> "...the proposed undertaking will satisfy in a highly acceptable manner the project purpose; it will contribute to the provincial goals of increased energy security and self-sufficiency and to the increased development of north-eastern Ontario.
>
> "With the proposed environmental control and protection measures incorporated in the project design, residual environmental effects will be minimized and acceptably small in comparison to the benefits of the project. Hence, it is recommended that this development be approved under the provisions of the Environmental Assessment Act."[32]

Would the people most affected by the development have agreed? On the basis of resolution of the issues as reported in the draft environmental assessment, probably not. But had the environmental assessment process proceeded further, three events affecting the adequacy of the draft environmental assessment would likely have occurred. First, the final environmental assessment document would probably have been expanded with appendices used to clarify general statements. Second, the proponents would have submitted the environmental assessment to the Ministry of the Environment where a government review by experts could have highlighted shortcomings and made recommendations for improvement. Third, Ontario Hydro and ODL would most probably have requested a hearing before the Environmental Assessment Board to seek approval for the project. With legislation providing the opportunity for public participation at a hearing, it could be expected that the issues would surface again. Public demand might have helped ensure that terms or conditions such as the installation of scrubbers, further research into labour conditions or details of job-training programs would become part of the approval.

However, the environmental decision was not the final one. The draft environmental assessment had not included economic feasibility considerations and another decision was forthcoming based on them.

THE ECONOMIC DECISION

Reaffirming what it had said as early as 1975, Ontario Hydro announced on January 20, 1982 that it would not be proceeding with development at Onakawana,

> "Ontario Hydro will not build a generating station on the Onakawana lignite fields because the cost of the development is too high to warrant going ahead....The project would probably be environmentally acceptable but it just cannot compare economically with the alternatives....Taking all costs into account, the lignite fuelled station would be much more expensive than hydro-electric or nuclear generation."[48]

ODL interpreted the economic findings differently, concluding that the project was economically feasible. Its disagreement with Ontario Hydro's interpretation of costs, however, did not change Ontario Hydro's decision. Submission of the environmental assessment to the Ministry of the Environment, review by Government, a hearing before the Environmental Assessment Board, and the opportunity for further public participation were not to take place.

THE AFTERMATH

ODL was gravely disappointed by Ontario Hydro's decision to terminate its connection with the Onakawana project. After sinking significant amounts of time, energy and money into studies, ODL was left with a lease containing a seven-year production provision and no available markets. On January 25, 1982, the Minister of Natural Resources stated that he was prepared to extend the production provision period of the lease by three years. In March, as ODL was preparing to close its Ontario office and return to Calgary, a representative stated the company definitely remained interested in mining the lignite if someone could be found to buy it, possibly either in briquetted form or converted to methanol. However, ODL felt that since the company did not control the factors which would make development economic, it could not proceed on its own.

On January 20, 1982, the Minister of Energy responded to Ontario Hydro's decision to withdraw from the Onakawana Project:

> "It is the government's intention to encourage the economic use of the province's indigenous energy resources and to continue our efforts in evaluating opportunities for lignite and peat development. A number of interesting proposals are being reviewed now on the conversion of lignite to synthetic liquid fuels."[13]

In June, the Ministry of Energy, the Ontario Energy Corporation (OEC), Canada Energy Mines and Resources, and ODL called jointly for proposals from consultants to examine conversion by liquefaction of lignite, peat and wood. In December 1982, consultants to examine conversion by gasification were sought. No site for a future processing plant if conversion is found to be technologically and economically feasible has been discussed, but a site in the area would receive close consideration. Also in December, the Ministry of Energy confirmed that ODL had agreed to carry out a market survey to determine the demand for lignite as a substitute heating fuel to replace coal, oil, natural gas and possibly wood.

Exploration for lignite in the James Bay Lowlands continues with the OEC and Lignasco Resources Ltd. holding exploratory licences of occupation to large areas. Lignasco, with a licence for 35,000 ha, has inferred that its Adam Creek area (approximately 60 kilometres southeast of Onakawana) may contain as much as 132 megatonnes of lignite. In-situ conversion of lignite to pipeline quality gas is being examined as a possibility. The OEC, with 365,000 ha under licence, has not estimated the extent of its reserves but has described its 1981 exploration season as "technically successful" with significant occurrence of lignite in one of 12 holes drilled. The OEC is exploring two possible uses of the lignite, conversion to synthetic fuel such as methanol, and pelletizing to supply local industry. End use would depend on how extensive the deposits are; reserves of 400 to 500 megatonnes would be required for economic conversion to synthetic liquid fuel.

If extensive deposits of lignite are found elsewhere than at Onakawana, it is likely that development will occur at some time in the future. It is also likely that the Onakawana lignite will be included in development.

ONAKAWANA AND THE ENVIRONMENTAL ASSESSMENT PROCESS

ENVIRONMENTAL ASSESSMENT AS A BASIS FOR DECISION-MAKING

How well did the environmental assessment process work in the case of Onakawana? Although it was truncated, never reaching the stage of submission to the Minister of the Environment, a number of problems in following the process became apparent. Perhaps the most important of these was failing to use the environmental assessment as a basis for the final decision.

The Environmental Assessment Act was not intended as a narrow environmental protection statute but had broader objectives. One of the objectives was described by a senior official of the Ministry of the Environment:

> "...what this Act endeavours to do is to place before the decision-makers all of the information, not just the environmental concerns in a narrow sense, but all of the information that they need to decide whether an undertaking, or one of its alternatives, is to get a "go" or a "no go" decision."[18]

Thus, the environmental assessment process was designed as a decision-making tool to give those considering development and those responsible for approval adequate information on which to base their decisions. Deliberations were meant to include the broad range of environmental factors and not just the economic and technical factors as had been the norm in the past. However, that does not mean to say that economic and technical factors were to be excluded; obviously they must continue to play a significant part in any planning process.

Since the draft environmental assessment (without consideration of economic cost and feasibility factors) concluded that the proposed undertaking was environmentally acceptable and recommended its approval under the provisions of the Act, on what was Ontario Hydro's no-go decision based? To find the answer, one must look at a separate paper prepared by Ontario Hydro without input from ODL or the public, the Project Assessment Report which documented the findings of economic and technical studies including:

1. An engineering cost assessment comparing the costs of developing Onakawana to the costs of alternative nuclear and coal-

fuelled generation and to the costs of developing unused hydro-electrical potential in northern Ontario;

2. A socio-economic evaluation of the four alternatives;

3. A review of recent environmental studies on each type of alternative; and

4. Discussion of alternative methods of financing an Onakawana generating station.

Ontario Hydro estimated that the capital cost of an Onakawana generating station, including flue gas desulphurization equipment (scrubbers), would amount to $4 billion; the capital cost for related transmission facilities would be $590 million, for a total capital cost of $4,590,000,000 (1995$). The lifetime costs of Onakawana were compared to those of equivalent megawattage portions of a bituminous coal-fuelled station and a new Candu nuclear station, and to new hydro-electric developments in northern Ontario. The results are shown in Table 8.

TABLE 8

LIFETIME COSTS OF AN ONAKAWANA GENERATING STATION, A CANDU NUCLEAR STATION, A BITUMINOUS COAL-FUELLED STATION AND HYDRO-ELECTRIC GENERATION

Power Source	Lifetime Cost in 1995$ $ Billions	Increased Cost of Onakawana
Onakawana (3 x 375 MW)	12.1	
Candu nuclear (4 x 850 MW)	9.2	2.9 (32%)
Bituminous coal-fuelled (4 x 500 MW)	5.2	6.9 (133%)
Hydro-electric generation	3.6	8.5 (236%)

Source: Ontario Hydro.

The socio-economic evaluation of Onakawana and the other alternatives concluded that an Onakawana generating station would be the most costly from a provincial perspective and would not produce the greatest overall benefit for the people of Ontario.

The environmental aspects of an Onakawana generating station were compared to those of two of the alternatives. The findings indicated that on environmental grounds Onakawana would be preferable to a bituminous coal-fuelled station but a preference could not be made between Onakawana and a nuclear station. Because work on new hydro-electric generation in northern Ontario is in its early stages, a comparison would be premature.

Three financing alternatives were considered: traditional Ontario Hydro financing with Ontario Hydro as owner-operator; financing by involving a consortium of companies including Ontario Hydro with Ontario Hydro as partial owner and operator; and government financing with Ontario Hydro purchasing the power. A detailed analysis was not undertaken since other forms of supplying energy were considered to be less costly.

The Project Assessment Report is the document on which Ontario Hydro's Board of Directors made its decision not to proceed with the project. The question arises as to why the co-proponents prepared a draft environmental assessment jointly and made their economic evaluations separately. The answer appears to lie in the dissimilar goals and motives of the two parties which worked against coming to the same economic conclusion. Ontario Hydro is an electrical utility corporation whose stated mandate is:

> "...to provide a reliable supply of electric power energy to the people of Ontario at the lowest feasible cost consistent with employee and public safety, taking into account the social, environmental and economic aspirations of the people of Ontario."[36]

It had long been of the opinion that building a generating station at Onakawana would not meet its needs, and it interpreted the economic studies as supporting that opinion. ODL, on the other hand, is a private mining firm whose goal, like that of all business and industry, is to maximize profits. In order to do so, it would have to mine the lignite and sell it. Obviously, a generating station at the mine site would fill ODL's needs admirably.

While the co-proponents could co-operate in doing environmental studies, evaluating probable effects and designing mitigation measures, they could not agree on the economics. Ontario Hydro concluded that the Onakawana project was less economically feasible than alternatives elsewhere; ODL bitterly concluded that Ontario Hydro's interpretation was wrong.

Although Ontario Hydro studies supporting the conclusions were carried out at the same time as the environmental assessment process, their findings were excluded from the draft environmental assessment. The separation illustrates an important conceptual point: environmental assessment was perceived as a process apart from the "real" (economic) business of decision-making.

PURPOSE OF THE UNDERTAKING

The Environmental Assessment Act requires that an environmental assessment shall contain a description of the purpose of the undertaking. The purpose is meant to be a statement of objectives couched in general terms so as not to unduly restrict potential options. In the case of the Onakawana project, the purpose as described in the draft environmental assessment was partially specific ("to develop an indigenous energy resource described as the Onakawana lignite deposit"), and partially general ("in order to: increase provincial energy security and self sufficiency; and contribute to the promotion of regional development").

A more general statement of purpose in this case would omit the reference to the Onakawana lignite deposit, leaving the way open for consideration of other methods of power generation such as a nuclear generating station, hydraulic development or combustion of biomass and waste. However, it would be unreasonable to expect ODL to enter into studies which could lead to its being cut out of the picture and left with an unmarketable resource. In that sense, the reference to lignite would appear to be a reasonable modification of the principle of generality.

ALTERNATIVES TO THE UNDERTAKING

Given that provincial energy security and self-sufficiency should be increased and regional development should be promoted through development of the Onakawana lignite deposit, how would development occur? What would the undertaking be? The "undertaking" is meant to arise out of the study process and to be the preferred alternative chosen from among several; it is not meant to be decided upon before the process begins, with other options examined as an after-thought. In the draft environmental assessment four alternative means of developing the resource were considered: first, transport of raw lignite to market; second, beneficiation and transport of dried, briquetted lignite; third, liquefaction or gasification of lignite and transport; and fourth, generation of electricity at a thermal power plant.

The shipping out of raw or briquetted lignite was deemed to be neither economic nor consistent with optimum exploitation of the energy resource. Liquefaction or gasification, most probably to methanol, was rejected as premature owing to "as yet unproven markets and pioneering-

state conversion technologies". The alternative of doing nothing was not considered even though that was the eventual outcome. That left the mine and the thermal power plant with its associated transmission facilities as the undertaking.

The draft environmental assessment described the environmental effects of and possible mitigation measures for the undertaking, but it did not do so, as specifically required by the Act, for the other alternatives. While Ontario Hydro might say that it would have no part in development occurring under one of the alternative forms and, therefore, should not be expected to pay close attention to them, two factors would argue against such a statement. First, the Ministry of the Environment addressed the issue in its General Guidelines:

> "The question arises as to how far afield the proponent should go in his search for and analysis of alternatives; this will depend on the nature and responsibilities of the proponent and the context of the proposed undertaking. In the course of the study, an alternative may be identified which appears viable, yet is not within the proponent's sphere of responsibility or capability. For instance, one government agency may find that the mandate for carrying out that particular alternative would lie with another agency or level of government. In such circumstances, it would be reasonable to expect the proponent government agency to seriously consider that alternative in its environmental study."16

Second, Ontario Hydro was not acting alone; ODL was also a proponent and could expect to be part of development through other means than a generating station.

Considering that Ontario Hydro was specifically directed by the Premier to study a power plant, it is not surprising that the generating station should be looked at to the virtual exclusion of the other alternatives. Yet, considering the actions of the Government to pursue studies into lignite exploitation after Ontario Hydro announced that it would not proceed with the project, it appears that the other alternatives received unduly short shrift.

DESCRIPTION OF THE ENVIRONMENT

Information about northern communities and the people who live in them is difficult to come by. Although various government bodies have amassed bits and pieces of data, and many data are available for the large administrative areas, there is no comprehensive body of information at the local level. Needless to say, attempting to analyze the potential impact of a development becomes problematic when the baseline is inadequate.

The description of the socio-economic environment of the Onakawana area in the draft environmental assessment was based on a report that did not allow a clear picture to be drawn of the communities and the people living in them. As noted earlier, many of the data were outdated or, in some cases, not available. Aggregating the data at the district level tended to submerge the characteristics of the smaller communities. Ontario Hydro was aware that its data base was deficient and had hoped that its committees could fill in the gaps--a hope left unmet because the committees did not have the resources to do so.

Whose responsibility should it be to see that information is collected? In its submission to the RCNE in 1977, the Ministry of the Environment stated that environmental assessment,

> "...is not an attempt to build a data base for the Ontario Government at the proponent's expense."[14]

The statement would seem to imply that collection of data is a government responsibility. If so, how does the Government ensure that sufficient data will be available in the future to make adequate analyses and evaluations possible?

PUBLIC PARTICIPATION

While public participation prior to submission of an environmental assessment is encouraged by the Ministry of the Environment, it is not required by legislation, nor is its form prescribed. The proponent is warned that acceptance of an environmental assessment and approval of a project may be jeopardized by failure to involve the public adequately but is left without guidelines as to what is adequate.

Who should advise the public that an undertaking and an environmental assessment are being considered? Who should the public be? When should public participation begin? Should the public be consulted when exemption or designation is considered? Should the public be asked to contribute to the formulation of specific guidelines? Should the public appear before the proponents early in the process? What form should public participation take? How much power should the public have? To advise? To recommend? To decide? Who should pay and how much? Should expenses only be reimbursed? Should the public receive stipends for the considerable time and energy they expend? Should funds be made available for research and outside expertise?

As things now stand, it is up to the proponent to determine the answers to these questions. That can lead to two problems: first, the public is left with no assurance that the answers will be in their best interests; second, the proponent may find that items not considered or controversial may come back to haunt him at a later date. The Ministry of the Environment has attempted to circumvent such a possibility by strongly encouraging early consultation between the Ministry and the proponent.

In the case of Onakawana, even before the project was designated, ODL had both consulted with the Ministry and notified the public that the company was eager to undertake mining, but the public function primarily remained one of passively receiving information purveyed by ODL. With Ontario Hydro's entry into the picture as co-proponent, a more structured form of public participation was added to ODL's public relations program. The members of the public in both instances were those with a higher profile than the rest of the population but still had no major part to play in the planning process. The public could suggest, advise and recommend but they could not change the thrust of the planning that had already occurred which was inevitably moving towards a mine, a generating station and a transmission line.

Ontario Hydro paid travel expenses and arranged the schedule of meetings so that members of committees would not be penalized financially by having to take time off work to attend sessions. But no monies were paid to individual members as honoraria. Nor were funds made available to members to allow them to conduct outside research, ensuring that most of the information flow would come from the proponents.

DESIGNATION

Why was the Onakawana project designated under the Environmental Assessment Act when other proposed major developments have not been? The answer seems to lie partly with the nature of the undertaking and partly with its timing.

With strip mining presumed to be the only realistic option for extraction of the lignite, massive environmental change could be expected. One has only to look at the remains of strip mines in this province (such as the now defunct iron mine at Marmora) to be awed by the blighting of the landscape and the withdrawal of land from any useful purpose. The danger of such consequences at Onakawana was clear. While many considered the development desirable, they were not willing to accept that the environment should be put to such risk without intensive study into ways of mitigating the adverse consequences. Task Force Onakawana had begun the process of evaluation in 1972 but had itself warned that its work was not of enough breadth or depth to be relied upon as a full picture of possible consequences.

When ODL was negotiating for a lease, other events were occurring that tended to focus attention on the north, development of its resources, and the effects of development on its environment. Prime among these was the controversy surrounding the Government's Memorandum of Understanding with Reed Ltd. which mobilized considerable response from the native people of the area, public interest groups, concerned citizens and the politicians at Queen's Park. It was not to the Government's advantage to forge ahead with another potentially controversial agreement without a mechanism for public involvement built into it.

Given the need for extensive study and involvement of the public, the Ministry of Natural Resources examined how these needs could be met and presented the options to Cabinet in 1977. The Cabinet's choice was the relatively new Environmental Assessment Act, then untried for any major development but perceived as the best option. And why should ODL agree to designation? ODL stated on several occasions its willingness to undertake an environmental assessment in order to assuage potential public opposition. But perhaps more important, the terms of the lease stated the project was subject to the requirements of the Act, and if ODL wanted to proceed it would have to accept the necessity of doing an environmental assessment.

In the case of Onakawana, the massive nature of the enterprise and the social climate of the time worked together to ensure designation. But could these factors be counted on to work in every case of proposed development? Obviously not since the Detour Lake gold mine, described as the largest gold mine in Canada and only about 150 kilometres from Onakawana, is going ahead without benefit of study under the Act.

CONCLUSIONS

The main thing to be said about the Onakawana project is that currently it is a dead issue. The lignite resource has a past and a potential future but little by way of a present. After all the time and energy and money that were invested in environmental assessment, the hopes of Government, the expectations raised by public participation, and the enthusiasm exhibited by ODL there is no development at Onakawana. Are the goals of energy self-sufficiency and benefits to the region through development of Onakawana lignite still attainable? With world oil prices falling and energy megaprojects collapsing, exploitation of a low-grade fuel is unlikely to happen tomorrow. Yet today's economic conditions will not prevail for all time and development of energy sources will be sought avidly again. If development were to be proposed at Onakawana at some future date, how could the environmental assessment process as it occurred be modified to better fulfill the purpose of the Environmental Assessment Act?

First, with the Act defining "environment" to mean, in part, "the social, economic and cultural conditions that influence the life of man or a community," economic feasibility factors cannot be omitted from an environmental assessment as they were in this case. To do so implies either a disagreement with or an ignorance of the inherent decision-making objective of the Act which seeks to examine all relevant factors prior to approval or refusal to give approval of an undertaking. To examine economic feasibility components separately and to use the results of that examination as the chief basis for a decision is a regression, at least conceptually, to an earlier time when environmental factors were given little consideration. We cannot know now what magnitude of opportunities was foregone when Ontario Hydro was stopped by engineering cost concerns and did not complete the environmental assessment process. Neither can we know whether the process might have been terminated at an even earlier stage if the Ministry of the Environment had advised the co-proponents that comparative costs are an integral component of an environmental assessment. That the Ministry did not do so may well have led to greater expenditures of time, energy and money than necessary, greater disappointment on the part of the public when the project finally did not go ahead, and skepticism as to the relevance of the Environmental Assessment Act.

Second, alternatives to the undertaking were woefully underaddressed in the environmental assessment. Part of the reason may be contained in the old aphorism "Be careful what you ask for, you might get it." The Government of Ontario in seeking energy self-sufficiency and a boost to regional development directed Ontario Hydro to conduct an environmental assessment for an Onakawana generating station. The Government got part of what it had asked for --an environmental assessment that was not submitted--but did not attain its goals--development of an indigenous energy resource and an economic stimulus for the

northeastern region. Studies, sponsored in part by ODL, are now proceeding on the feasibility of two of the alternatives discarded in the environmental assessment process, transport of raw lignite to market and liquefaction or gasification of the lignite to transportable fuel. It appears that at least two of the alternatives were discarded too early. Intervention by the Ministry of the Environment might have ensured that those alternatives received closer attention. In future planning, adherence to the Ministry's October 1982 Guidelines for Pre-Submission Consultation may avert this kind of problem.

Third, description of the environment was not as full as it might have been. A number of the studies were adequate and would remain relevant. After all, it is highly improbable that the prevailing winds would change direction or that the rivers would begin flowing towards the Great Lakes. Yet descriptions of other facets of the environment were inadequate. Characteristics of the local labour force is one example that springs immediately to mind. Studies could have led to a better picture of the people who live in the area, what their skills are, what would be necessary to upgrade their job skills, and how management and unions might work towards increasing local employment rather than hampering it.

Fourth, public participation in seeking the answers to such questions and balancing concerns is essential. For too long the ordinary citizen has stood by while resources were being consumed and the environment changed. He wants to be involved in the process of making decisions that will affect his life. Clearer guidelines as to the parameters of public participation would be to the advantage of Government, the proponent and the public.

Fifth, designation of a private undertaking still appears to be somewhat arbitrarily decided upon. It is to be hoped that the Environmental Assessment Advisory Committee, when it is organized, will be able to assure that projects with potentially significant effects on the environment of Ontario North of 50° will be seriously considered for designation.

The environmental assessment process is not an end in itself. Following the process is meant to ensure the betterment of the people of Ontario by providing for the protection, conservation and wise management of Ontario's environment. In other words, judicious application of the Environmental Assessment Act could fulfill its purpose and contribute to what northerners have been asking for, controlled development of their natural resources with due regard and respect for the northern environment.

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APPENDICES

APPENDIX A

CHRONOLOGY OF ONAKAWANA LIGNITE DEVELOPMENT

1672 Lignite at Onakawana exploited by Hudson's Bay Co. employees in blacksmiths' forges.

1871 Lignite deposit recorded in Geological Survey of Canada's Report of Progress.

1885 First drilling on site by Geological Survey personnel with 4-1/2 inch hand auger.

1928 - 1932 Ontario Department of Mines engaged in exploration, sampling, processing and investigation of markets. Drying of lignite to fuel boilers (in steam locomotives, paper mills, smelters and mines) shown to be feasible but economic conditions did not justify further development.

1939 - 1945 Exploration and sampling of lignite to power steam locomotives of the T&NO Railway (now the ONR) continued. Lack of substantial industrial markets made it uneconomical to continue.

1966 Heavy water plant proposed by Ontario Government but proposal not picked up by industry.

1967 Private sector entered picture with Alberta Coal Ltd. granted exploratory licence of occupation covering 375 square miles.

1968 - 1969 Alberta Coal Ltd. evaluated possibility of heavy water production.

1972

February Speech from the Throne announced that the Government would be proceeding with proposals to develop lignite at Onakawana which is capable of supporting a 1,000 MW power plant to help meet Ontario's continuing need for increased power.

March Ontario Research Foundation published a report on the technical and economic feasibility of producing pipeline quality gas from lignite. Their conclusions were that gasification would be feasible within 5 to 12 years and would be preferable to thermal power generation.

June Manalta Coal Ltd. took over management of Alberta Coal Ltd. and formed a subsidiary, Onakawana Development Ltd. (ODL), to promote development of the lignite.

1973

January Task Force Onakawana, composed of representatives from MOE, MNR, Management Board, Ontario Hydro (OH), the Conservation Council of Ontario and one local resident, investigated the environmental impact of a strip mine and thermal power plant at Onakawana.

June — ODL granted an exploratory licence of occupation covering 16,500 acres.

1973

October — Shawinigan Engineering Co. (SECO), acting as consultant to the Government of Ontario, OH and ODL, published an engineering feasibility study and economic analysis which concluded that reserves were sufficient to support a 1000 MW power plant.

1975

July — Environmental Assessment Act received third reading.

November — OH formally advised the Ministers of Natural Resources and Energy that the usefulness of Onakawana lignite as a fuel for electric power development by OH was not worthwhile and that it wished to terminate all work and studies.

1977

May — MNR submitted a document to Cabinet recommending that a 21-year lease be granted to Manalta Coal Ltd.

OH agreed to reconsider Onakawana project with Shawinigan/STEAG/ODL.

June — Ontario Cabinet gave approval in principle to a 21-year lease to Manalta Coal Ltd.

October — ODL agreed to designation under the Environmental Assessment Act (EAA).

November — MNR held Open House public meetings in Moosonee, Cochrane and Timmins to provide information and to solicit views, concerns and suggestions on the proposed development of Onakawana lignite. Resource people included representatives of MNR, MOE, ODL and RCNE.

OH told RCNE public hearings that long-range plans did not specifically include development of the Onakawana lignite deposits but if ongoing studies proved development economic and desirable, Onakawana would be included in long-range generation plans.

1978

January — MOE drafted guidelines for ODL environmental assessment.

February — 21-year lease between MNR and ODL covering 5,139.43 hectares (12,699.53 acres) came into effect with the provision that within 7 years (1985) ODL would establish a mining operation which would mine, produce, sell or otherwise utilize not less than 1 million tons of coal each year.

Treaty #9 called for a moratorium on all major development until the RCNE had completed its studies.

February — Regulations under the EAA designating ODL filed.

March — ODL submitted an outline of its proposed field investigations to the MOE.

April — Mr. Justice Hartt rejected calls for a moratorium on development on the grounds that it could needlessly cause hardship, increase unemployment and delay benefits to people.

First recommendation of the RCNE's Interim Report: Onakawana Development Limited and the Ministry of the Environment should take immediate steps to discuss fully and openly the planned environmental assessment of the proposed lignite mine south of Moosonee with local communities and affected groups and that the company undertake to meet their concerns in its assessment.

May — MOE provided ODL with environmental assessment guidelines for the Onakawana project.

ODL began its public participation program by flying the James Bay Education Centre's (JBEC) Board of Governors to Alberta to view Manalta Coal Ltd.'s strip mines in operation.

July — ODL prepared an outline of program for community involvement in the socio-economic assessment of the Onakawana lignite mine development.

August — 5-volume report by Shawinigan/STEAG/ODL/OH on the technical and economic feasibility of a coal mine and generating station at Onakawana completed. Its conclusions were that a 1,020 MW generating station was as economically attractive as a comparable station in southern Ontario using US and western Canadian bituminous coals.

Sept. - November — ODL held meetings with: Treaty #9; Northern Lights Secondary School in Moosonee; community representatives from Timmins, Cochrane, Kapuskasing and Moosonee; Timmins, Kapuskasing and Smooth Rock Falls Chambers of Commerce; Kapuskasing Industrial Committee; Matheson Rotary Club; Assoc. of Professional Engineers of Ontario; and Assoc. for Certified Engineering Technicians and Technologists of Ontario.

November — OH told RCNE that forecast need for electricity has delayed the need for additional generation beyond Darlington GS to the late 1980's--this would include Onakawana. A power plant at Onakawana would be competitive with other coal-fired stations but not with nuclear generating stations.

December — Peat, Marwick and Partners completed a study investigating the Onakawana project's impact on Ontario's economy, concluding that during the 5-year construction period 14,600 man-years of employment would be created and approximately three-quarters of a billion dollars would be spent. During 30 years of operation, 26,100 man-years of employment would be created; and in a typical year $30m would be expended.

1979

January-October — ODL met with: community representatives from Moosonee and Moose Factory; North Bay Rotary Club; Ontario Metis and Non Status Indian Assoc. (OMNSIA); Timmins-Porcupine Chamber of Commerce.

February — Premier Davis, in a speech to the Cochrane Board of Trade, announced that he had asked the OH Board of Directors to consider a program directed towards basic engineering for the mine and power plant; completion of environmental assessment and approvals; exploratory drilling and bulk sampling; future power needs of northern Ontario and how power generated at Onakawana could serve those needs; and examination of alternative financial arrangements.

March — OH Board of Directors approved continuation of studies on the Onakawana project.

Ministry of Energy announced a joint OH/ODL program to conduct studies on the Onakawana project.

October — Water quality and fishery surveys begun on Abitibi and Onakawana Rivers and nearby tributaries. On-site data collection of local weather conditions (winds, temperatures, humidity, rainfall, snowfall) begun to cover a one-year period.

Fall — 1400 tons of lignite mined and a 200-ton sample shipped to Germany for test burns.

December — OH and ODL announced that studies would be conducted in preparation for an environmental assessment document (EAD) with ODL responsible for proposal of an environmentally acceptable mining plan, including restoration of the coal field, and with OH responsible for proposal of an environmentally acceptable construction and operation plan for a 1,000 MW generating station on site and a 340 km. transmission line.

1980

January-February — Information Centres conducted by OH in Timmins, Sudbury, Cochrane, Kapuskasing, Moose Factory and Moosonee to inform the public of studies proposed, to identify areas of environmental concern, and to identify members of the public as participants.

February — Aerial surveys conducted to determine the distribution of moose, woodland caribou and wolves in a 2500 km^2 area around Onakawana.

The Royal Commission on Electric Power Planning (RCEPP) recommended in its final report: "On strictly power-systems planning and economic grounds, the Onakawana lignite deposits should be developed; and an electric power station of 800 MW-1,000 MW capacity should be built at the mine site. However, we recognize the Royal Commission on the Northern Environment, on social and environmental grounds with respect to both the power station and the associated transmission corridor, may not support this recommendation, and we believe that their views should have precedence".

February-November — ODL met with: community representatives from Moosonee, Moose Factory, Timmins and Cochrane; Cochrane Board of Trade; OMNSIA; Ontario Northland Transportation Commission; and attended the North Clay Belt Economic Development Conference.

March 6 — 1st meeting of OH's Citizens' Committee on the Onakawana transmission route planning study held with representatives of northern interest groups. The Committee's function was to identify areas to be avoided, provide information, check data accuracy, assist OH in evaluating route alternatives, and ensure that concerns of their respective groups were considered in the planning process.

March 29 — 2nd meeting of the Citizens' Committee to review data collected and identify environmental concerns within the transmission line study area. Three Subcommittees set up to cover settlement and leisure, industrial and biological concerns.

April 22 — 1st meeting of OH's Southern Municipal Liaison Committee regarding the proposed generating station. The purpose of the meeting was to provide for dialogue between Committee members and OH, review the project, and establish the role of the Committee.

April 23 — 1st meeting of OH's Northern Municipal Liaison Committee in Moosonee regarding the proposed generating station, with representatives from OH, Moosonee and Moose Factory. Moose River Crossing was invited but attended no meetings.

May — Baseline inventory covering: socio-economics--population characteristics, labour force characteristics, industrial characteristics, incomes and wage rates, tourism and recreation, local government finance, infrastructure, economic history of the Cochrane District, government structure; and native peoples-- history, cultural affiliations and language, political concerns, population characteristics, educational system. Prepared by Environmental Applications Group (EAG) as background information for social impact assessment (SIA). Sent to liaison committees, citizens' committee, native communities and RCNE for review and comment. Found by RCNE to be flawed. No feedback from native groups.

May 10 — 3rd meeting of Citizens' Committee to review draft objectives statements developed by OH.

May 20 & 21 — 2nd meeting of Southern and Northern Municipal Liaison Committees to provide information on the electrical system in the northeastern region and plans for the hydraulic program.

June 13 — 4th meeting of the Citizens' Committee to review and finalize the objectives statements in preparation for ranking of environmental concerns.

June 17 — 3rd meeting of the Southern Municipal Liaison Committee to discuss the baseline inventory of socio-economic factors; to discuss environmental studies; and to make presentations on the use of wood waste as potential fuel for generation.

June 18 3rd meeting of the Northern Municipal Liaison Committee. The Committee claimed that too much information was being presented too quickly with too many terms that people did not understand.

September Mapping of vegetation and soil types between Onakawana and Nine Mile Rapids completed.

Studies underway: determination of long-range dispersion and ground level concentrations and deposition rates of SO_2 and NO_x within a 750 km radius; analysis of sensitive receptor areas (lakes, vegetation) to determine potential impact of increased acid loadings from Onakawana; review of alternative emission control technologies.

Sept. 5 & 6 5th meeting of Citizens' Committee to provide an update on technical and environmental studies, review maps, and set ground rules for overall ranking of environmental concerns.

Sept. 24 4th meeting of the Northern Municipal Liaison Committee at Moosonee in which each member gave a short presentation on how he and his parent group viewed the effects of the Onakawana project on his community of interest.

October 3 & 4 6th meeting of Citizens' Committee to review study area, maps and ranking procedure. Finalized ranking of environmental objectives and selected Route Identification Subcommittee to be composed of Committee members and OH representatives.

November 18 & 19 4th meeting of the Southern and 5th meeting of the Northern Municipal Liaison Committees with an explanation of the environmental assessment process, review of studies, and an overview of acid precipitation.

Nov 24 - Dec 5 OH Information Centres at Timmins, Kapuskasing, Smooth Rock Falls, Cochrane, Moose Factory and Moosonee with overview of studies and results of Committee work. Low public turnout.

Nov 28 & 29, Dec 5 Meeting of Route Identification Subcommittee in Sudbury to identify alternative routes for further evaluation.

Dec 6 7th meeting of Citizens' Committee to select alternative routes and to inform as to how technical evaluation would be made.

1981

Feb 17 5th meeting of the Southern Municipal Liaison Committee to review preliminary results of the SIA. Projections were that during a 7-year construction period, 4,505 man-years of employment would be created; over 30 years of operation, 12,000-14,000 man-years of employment would be created. 35% of construction jobs and 45% of operating jobs would go to local people. 300 new households would be added, mainly in Cochrane, Kapuskasing and Timmmins. Amount of secondary employment would be small with a multiplier ratio of 20 direct jobs to 1 secondary job. Job training for the mine would combine practical experience and classroom training at JBEC.

Feb 28 8th meeting of Citizens' Committee to look at elements of leading route alternatives.

March 23 & 26 OH Information Centres at Sudbury, Timmins and Cochrane to obtain comments from the public regarding the possible transmission line routes.

March 25 6th and final meeting of the Northern Municipal Liaison Committee to review preliminary results of SIA. Native members felt data were outdated and inadequate but were unable to provide their own data. Representatives from Moose Band and Moosonee OMNSIA resigned because they felt they were being manipulated as tokens.

April 10 & 11 9th and final meeting of the Citizens' Committee to determine the Committee's route preference with the Committee and OH staff choosing routes separately. The 2 groups concurred in the central and southern sections of the route but disagreed on the northern section.

May 6 OH accepted the Citizens' Committee choice for the northern section.

June 3 Grand Council Treaty #9 affirmed the resignations of representatives from Moose Band and Moosonee OMNSIA from the Northern Municipal Liaison Committee on the basis that native representation must be not at an ad-hoc committee level but at the highest possible levels with "representatives given the type of respect and representation accorded to Cabinet and other Deputy Ministers within this country."

August Draft environmental assessment completed by OH and ODL.

January Draft environmental assessment to OH Board of Directors. Board announced that it was pulling out of the Onakawana project on the grounds that there is no current need for the energy and a generating station would not be economically competitive with hydraulic, nuclear or other coal-fired plants elsewhere in the province.

Minister of Natural Resources directed that ODL's lease be amended to extend the 7-year production period by a further 3 years.

May 20 Minister of Energy announced to Cochrane Board of Trade his Ministry would be seeking proposals for the assessment of techniques for converting lignite into synthetic liquid fuels with the ultimate aim of establishing a commercial conversion facility.

June 2 Ad placed in the Globe and Mail and Northern Miner by Ministry of Energy, Ontario Energy Corporation, Canada Energy Mines and Resources, and ODL asking consultants to submit statement of experience and qualifications to review and assess technologies for the conversion of Ontario lignite, peat and wood into liquid fuels.

APPENDIX B
PROPERTIES OF ONAKAWANA LIGNITE, SASKATCHEWAN LIGNITE AND ALBERTA SUB-BITUMINOUS COAL

	Onakawana[1] Lignite Average of Test Pit & Drill Holes	Saskatchewan[2] Lignite	Alberta[3] Sub-Bitumous
Proximate Analysis %			
Moisture	49.8	35.85	20.1
Ash	9.9	6.24	11.1
Volatile matter	19.6	27.11	25.8
Fixed Carbon	20.6	30.8	42.9
Ultimate Analysis %			
C	22.54	43.45	62.5
H	2.0	2.75	3.7
S	0.5	0.44	0.3
N	0.28	0.73	0.8
Ash	9.9	6.24	14.8
O2	9.4	10.54	17.9
Calorific Value			
Btu	4,714	7,110	8,350
MJ/kg	10.97	16.5	19.4

Sources:

1. Onakawana Development Ltd. and Ontario Hydro. Draft Onakawana Project Environmental Assessment. August 5, 1981.

2. Laughlin, R.G.W. & Brown, C.K. An examination of the technical and economic feasibility of producing pipeline quality gas from the James Bay lignite deposits. Ontario Research Foundation. 1972.

3. Tibbetts, T.E., Montgomery, W.J. & Faurschou, D.K. Analysis directory of Canadian commercial coals---supplement no. 3. Energy Mines and Resources Canada. December 1978.

APPENDIX C

RECOMMENDATIONS OF TASK FORCE ONAKAWANA, JANUARY 1973

RECOMMENDATION #1

That the regulatory authorities be charged with examining the final engineering plans for the development of Onakawana and assuring that departures from the assumptions made in this report as to the way in which the project will be engineered are basically correct and that modifications are not such as would result in unanticipated damage to the environment.

RECOMMENDATION #2

That the economic-engineering study to be undertaken by the development corporation concurrently examine the environmental impact of the development and define to the satisfaction of the Ministries the relationship of the development to the environment during the period of construction, operation and the post-operation period.

RECOMMENDATION #3

That all potential alternative uses for the lignite deposits at Onakawana be measured against the criterion of the contribution that the proposed development will make to the economic and social well-being of the people living within the region.

RECOMMENDATION #4

That the acknowledged fact that the proposed site of the development at Onakawana is remote and is not rich in forest, soil, wildlife and other resources, as compared with some of the naturally productive regions of Ontario, not be considered justification for any relaxation of the regulations designed to protect the environment and that the environment not be damaged to an extent considered avoidable and be restored as quickly as practicable.

RECOMMENDATION #5

That further environmental investigation be required prior to the granting of a development permit given that the time frame within which research has been done and the understanding that this examination was preliminary to further investigations has resulted in some of the conclusions being based upon inadequate data, investigation and research.

RECOMMENDATION #6

That the cost of restoration and reclamation of the affected area be borne by the development company, and a fund be created from a levy per ton of lignite removed and held in trust to be progressively refunded to the development company only upon the written approval of the appropriate Ministries as to the adequacy of the restoration of the site.

RECOMMENDATION #7

That the appropriate regulatory agencies audit very carefully the procedures proposed by the development company for the withdrawlal of water from the river and cooling of the water from the thermal-electric generating station and confirm that the proposed procedure has no unacceptable and deleterious impact on the waters of the rivers of the area.

RECOMMENDATION #8

That water pumped from the mine pit, used to transport fly ash or bottom ash, water used to cool the condensers or water used for other purposes which damage quality be so treated that, when returned to flowing streams or rivers in the area, the result is not the deterioration of the water in the receiving river or stream.

RECOMMENDATION #9

That if the engineering feasibility study confirms that the Onakawana River must be diverted, this be accepted subject to minimum erosion and minimum deterioration of water quality in the diversion and, further, the possibility of the subsequent restoration of the Onakawana River to its original outflow channel not be irrevocably prejudiced.

RECOMMENDATION #10

That if the engineering feasibility study confirms the unavoidability of the destruction of the headwaters of Medicine Creek this be accepted, subject to the protection of the quality of the water in the downstream portion of the creek.

RECOMMENDATION #11

That a careful and relatively detailed plan of rehabilitation which has received the approval of the appropriate Ministries be formally filed before site development is undertaken and the development company be committed to on-going and final restoration of the site according to this plan.

RECOMMENDATION #12

That research programs with respect to fish and wildlife in the Onakawana area be continued in the four seasons of the year in order to obtain a more precise inventory.

RECOMMENDATION #13

That the effluent gases from the Power Station be admitted to the atmosphere at a minimum height of 500 feet above grade with a minimum exit velocity of 80 feet per second at full load, and that the development company receive approval of the appropriate Ministries in respect to the handling and ultimate disposal of fly and bottom ash.

RECOMMENDATION #14

That a requirement in the granting of a permit to mine the lignite deposits at Onakawana be that the development corporation, to the extent possible, provide employment to persons who are resident in the region and that relevant training programs be undertaken to approximately upgrade the skills and employability of persons resident in the region.

RECOMMENDATION #15

That a new, "permanent" community not be created during the operations period of the mine and thermal-electric generation station and workers be provided with a work schedule and with transportation of a speed, reliability and cost that enables them to travel from their existing communities.

RECOMMENDATION #16

That a program of assessing the resources of the lower James Bay Lowlands be initiated and the proposed development at Onakawana integrated into an overall plan for the area.

RECOMMENDATION #17

The engineering environmental impact studies produced by the developer be public information, and well advertised public hearings be held to discuss the project before the ultimate decision is made on whether or not to proceed.

RECOMMENDATION #18

That experience in other provinces and countries be examined and that surface mining legislation in these jurisdictions be studied with the objective of improving environmental controls in Ontario.

APPENDIX D

DESIGNATION OF ONAKAWANA DEVELOPMENT LIMITED

REGULATION MADE UNDER
THE ENVIRONMENTAL ASSESSMENT ACT, 1975

O. Reg. 129/78
Filed February 24, 1978
Published Ontario Gazatte

March 11, 1978

DESIGNATION - ONAKAWANA DEVELOPMENTS LIMITED

1. In this Regulation,

(a) "related facilities" includes any facilities necessary for,

(i) the production, storage and transmission of lignite or products derived therefrom, and

(ii) "products" includes energy.

2. The enterprise or activity by Onakawana Developments Limited or any person or company related to it by ownership or contract, of establishing, constructing and operating a lignite strip mine and any related facilities in the Territorial District of Cochrane is defined as a major commercial or business enterprise or activity and is designated as an undertaking to which the Act applies.

* * * * * *

APPENDIX E

MINISTRY OF THE ENVIRONMENT'S GUIDELINES FOR THE ONAKAWANA DEVELOPMENT

INTRODUCTION

A development planned for Onakawana, Territorial District of Cochrane has been designated under The Environmental Assessment Act, 1975. Onakawana Development Limited has proposed the mining of a large lignite deposit in the area, and has obtained a mining lease from the Ministry of Natural Resources. It should be noted that if the Government of Ontario determines that the project would not be in the best interests of Ontario, the lease can be cancelled.

The prime objective of this project as stated by the Government is to provide local long term employment with the least possible adverse effects.

It is not known at present what will be done with the lignite once it is mined. The possibility of the construction of a thermal generating station on the site, with transmission lines linking it to the south, is being investigated. Onakawana Development is looking at the possibility of briquetting the lignite and marketing it in that form.

The environmental assessment designation encompasses the mining activity as well as any related facilities for "the production, storage and transmission of lignite or products derived therefrom, and the restoration of any mined area. "Products include energy".

The objectives of the environmental assessment done under the requirements of The Environmental Assessment Act are:

1) To identify and evaluate all potentially significant environmental effects of proposed undertakings at a stage when alternative solutions, including remedial measures and the alternative of not proceeding are available to decision-makers.

2) To ensure that the proponents of an undertaking and Governmental agencies required to approve the undertaking give due consideration to the means of avoiding or mitigating any adverse environmental effects prior to granting an approval to proceed with the undertaking.

An Environmental Assessment document must be submitted to the Ministry of the Environment setting out how these objectives have been met. Section 5(3) of the Act (see below) states the required content of the EA document. It is not intended that the items listed in Section 5(3) necessarily be used as "chapter headings" nor that the requirements appear in the order in which they appear in the Section.

DISCUSSION OF CONTENT REQUIREMENTS

(a) "A description of the purpose of the undertaking;" It is necessary to have a clear understanding of the objectives of the activity in order to prepare a description of the project's purpose. A

clear statement of purpose will greatly aid in the assessment of the proposed activity. Alternate means of achieving the objectives can then be identified and evaluated or screened. The most acceptable means of meeting the objectives can then be selected by the proponent and put forward as the "undertaking".

(b) "A description of and a statement of the rationale for:

i) the undertaking
ii) the alternative methods of carrying out the undertaking
iii) the alternatives to the undertaking".

The Act requires that alternative ways of meeting the objectives of the proposed activity be described and the rationale for each stated. Alternatives might consist of widely divergent alternatives such as utilizing the lignite for gasification, briquetting, or electrical generation, and alternative ways of carrying out a particular activity such as a once-through cooling or strip mining. It is not expected that the proponents describe and explain the rationale for each alternative in equal detail, rather the proponent should first discuss alternatives generally, then as some are rejected, discuss the remainder in more detail and so on until only one alternative is left - the proposed undertaking. In discussing the rationale for the proposed activity, the alternative of doing nothing should be considered. It is intended that effects of the 'no-go' alternative be used for evaluating the advantages and disadvantages of the project proceeding.

c) "a description of,

i) the environment that will be affected or that might reasonably be expected to be affected directly or indirectly,

ii) the effects that will be caused or that might reasonably be expected to be caused to the environment, and

iii) the actions necessary or that may reasonably be expected to be necessary to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment, by the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking".

Reiterating a point made in the previous section, it is not intended that the environmental effects of all alternatives be described in equal detail, rather it is envisaged that a screening process take place with the environmental description provided becoming more detailed for those alternatives which are retained throughout the evaluation process. The intent is to document how the proponent decided to carry out a specific undertaking and to show how environmental considerations were taken into account in deciding the undertaking.

It must be kept in mind that the environment as defined in the Act includes the social, economic and cultural environment as well as the natural environment.

Although it is not a mandatory requirement in conducting this assessment, it is important that the public (especially Native people) be involved in identifying potential impacts of various alternatives and their relative

importance to society. The public can help planners focus the investigation by identifying impacts which are of particular concern and warrant investigation in detail. Recognizing the special relationship of Native people to their environment, the nature of a resource-based industry in the North, and the provisions in the Act for public involvement in the formal decision-making process, it is advisable for a proponent to develop a public participation programme with Native and non-Native people before a formal submission is made.

Appended is an illustrative list of environmental characteristics which the Government believes should be examined. The list should not be considered an all-inclusive one and the proponent, when carrying out his investigations, may discover other items which should be discussed or that some items mentioned may not prove to be of concern.

The description of the effects of the project should include both beneficial and detrimental effects. Again, as the proposal becomes less general and more specific, the discussion of effects should become more detailed.

(d) an evaluation of the advantages and disadvantages to the environment of the undertaking, the alternative methods of carrying out the undertaking and the alternatives to the undertaking.

Throughout these guidelines there has been reference to the screening of alternatives until a single alternative has been reached. It is intended that the evaluation of alternatives take place during the environmental assessment process. After the proponent's objectives have been clearly defined, the practical alternatives which might meet the objectives can be identified and described.

The pros and cons of these alternatives can be examined and some quite readily eliminated.

For example, it might be possible to eliminate the underground mining of the lignite very quickly and reasonably on economic or technical feasibility grounds. That alternative need not be discussed after it has been eliminated. As alternatives are eliminated and the project becomes more and more rigidly defined, then a more detailed evaluation would be required.

In describing the pros and cons of alternatives; economic, technical, social, human heritage and natural environmental considerations should be discussed. As this process takes place, the ease with which any adverse effects could be mitigated should be discussed so a true balance of benefits and costs can occur.

At the end of this evaluaton process, the ultimate desired undertaking will be identified and described. Its pros and cons will be known as will those for alternatives which were discarded in the selection process.

It is possible that the overall effects of the chosen undertaking might be such that it should be compared against some previously eliminated alternative. For example, the final examination of a preferred mine drainage design might result in the decision to go back and re-examine a previously discarded alternative.

APPENDIX A

PROJECT DESCRIPTION

The description of the undertaking should include the following information. The proponent should include any additional information or data which comes to the proponents attention as being important in the decision-making process.

1. General

- types(s) of undertaking chosen, i.e. strip mine, generating station, etc.)
- initial size, phasing, ultimate desired size
- intended on stream date for mine, G.S. or briquetting plant, etc.
- life expectancy of mine
- additional servicing facilities
  - railway upgrading
  - roads construction (if any)
  - other utilities
- labour force size, consider relationship to phasing of construction
  - utilization of local and outside work forces
  - operating force size
  - qualification (breakdown into skilled, unskilled temporary, permanent, etc.)
  - number of new residences such as:
  - servicing and utilities
  - community servicing
  - training and employment opportunities for Native and non-Native peoples.

2. Construction

- timing
  - for each phase of the undertaking
  - site clearing
  - mine preparation
  - site preparation for processing facilities, e.g. briquetting operating
  - etc.
  - living areas (if special camp is to be located on/near site)
  - storage area(s)
  - phasing of construction
  - procedures for
    - clearing
    - site preparation
    - any filling required

3. Operating Procedures

- mining plan
- processing plant operating procedures
- noise - criteria, monitoring procedure
- testing and analysis of any effluents generated, e.g. pumpwater, condenser biocides, boiler blowdown, process water, ash slurry
- listing of any and all other likely contaminants having potential for human health hazards
- treatment proposals and expected levels of discharge related to possible fate in the ecosystem

- peak periods
- emergencies - contingency plans
- reporting mechanisms (to whom, and when?)
  - day to day
  - emergencies
  - emissions
- monitoring
  - inside and outside of plant
  - off plant operations
- other

ALTERNATIVES EVALUATION

The following is a list of factors used in the evaluation of the alternatives. While it is not expected that all of these items will enter into the alternative evaluation process at every stage, the final undertaking design should reflect those factors which are relevant to the environment of the area.

Each part of the list is divided into two sections:

a) a listing of concerns government ministries have over effects the project might have on that particular aspect of the environment, and

b) information required in order to satisfy these concerns.

PART I - INVENTORY

1. PHYSICAL TERRAIN

(i) Geological Characteristics

(a)
- potential effects of faulting
- effect of accelerate weathering
- effect on unique features, notable deposits (e.g. fossils)

(b)
- topography
- stratigraphy, geomorphology
- weathering, geochemistry
- unique or significant fossils
- precious and semi-precious rock areas
- unique features
- other

(ii) Soils and Stability

(a)
- predicted effects of permanent facilities on stability (i.e. steep banks, dust, erosion of spoil piles, etc.)
- effects of construction on stability (including above, and dust, sheet erosion, changes to terrain, etc.)
- potential effects on facility due to subsidence (settling)

(b)
- slopes
  - stability
  - structural roads
  - rock fall

- soil types - location - temperatures - composition
- soil stability (related to soil types and particular terrain features)
- depth of overburden
- erodibility
- disposal of excess soil material
- permeability
- subsidence
- other

(iii) Seismic Action

(a) - effect of historical activity on site to date
- potential for contamination release due to structural damage

(b) - local seismic activity
- distance seismic activity (i.e. identify that nearest to site)
- public safety aspects
- probability of activity
- other

2. AIR RESOURCES

(i) Air Quality

(a) - plant contaminants - toxic effects
- on-site deterioration
- effect on neighbouring persons and/or communities
- potential effects on employees
- existing air quality on-site) background
- existing air quality off-site) contaminants
- phytotoxicology data/parameters

(ii) Dispersion Climatology

(a) - wind speeds/direction/erosion potential
- mixing heights
- frequency of inversions
- mixing conditions
- limitations of topography (e.g. valley and canyon sites)
- wind directions and frequency
- air quality and standards in area, and within potential zone of impact
- atmospheric stability
- natural heat flux
- number and locations of heat sources (having potential influence around site)
- potential points of impingement
- other

(b) - predicted air dispersions
- under all possible conditions
- impingement (and frequency)
- inversions

- interaction with other sources
- predicted microclimatic change

(iii) Fogging and Icing

(a)
- magnitude of possible natural fog concentrations
- areas prone to fog
- type
- major transportation routes
- possible impingement from facility
- other

(b)
- potential for addition to fog/ice conditions because of facilities must consider worst case
- point of impingement of water vapour from all sources
- effect on adjacent land uses

3. WATER RESOURCES

(i) General

Those noted under "Inventory (Section III)" should be discussed in relation to the likelihood of potential effects. The examples of policy considerations listed below should be considered in light of the site being studied. Those considerations having a potential role in the decision-making process should be noted. Any others coming to the attention of the proponent and not listed should also be included.

- riparian rights
- shoreline rights
- policy on water taking
- long range water management plans
- flood management plans
- groundwater
- combined effects
- water use policies and priorities
- water uses for recreation, sport fisheries, commercial fishing, transportation, potable water supply, etc.
- other

(ii) Physical

(a)
- meterological parameters affecting thermal plume disperal and cooling
- currents
- groundwater - location; recharge-discharge area - effects of spoil piles leachate
- impoundments
- set-up and seiches

(b)
- impact of continued operation under potential off-standard conditions
- storm water implications
- effects of icing

- changes in groundwater, levels - recharge
- river diversions
- settling ponds

(iii) Chemicals

(a) - effects on water quality parameters

(b) - conventional parameters for water quality survey (solids, nutrients, trace)
- pathways of concentration of probable effluents

(iv) Biological

(a) - aquatic macrophytes
- microbiology (bacteriology)
- benthic macroinvertebrates
- planktonic macroinvertebrates
- fish
- amphibians and reptiles
- waterfowl
- water dwelling animals

These topics should be emphasized:

- species biology
- seasonal population levels
- movements (e.g. spawning runs)
- (reproduction)
- food web relationships
- substrate relationships
- their temperature requirements at various times of the year
- key factors controlling population levels

(b) - the biological studies completed in the alternative selection stage should be reconsidered in conjunction with MOE in light of the chosen alternative for the possible need for additional evaluation.

4. BIOLOGY (Terrestrial)

(i) Terrestrial Problems

(a) - potential for damage on and off site due to:
  - emissions - air
  - emissions - solid
- effect on productivity
- system effects

(b) - floral, faunal components
- communities, interrelationships
- species diversity
- ecosystem trophic structure
- other

(ii) Sensitive Species

(a) - intrusion into system
- adaptability

(b) - floral and faunal
- interrelationships
- scale of area

(iii) Breeding Habitats (Terrestrial)

(a) - possible effects from construction due to such factors as:
  - noise
  - storage areas
  - temporary camps
  - people access
- possible effects from operation due to such factors as:
  - increased siltation, erosion
  - alteration of current patterns
  - alteration of water level
  - alteration of animal/bird behaviour
- significance for human interests
- significance for ecosystem stability

(b) - waterfowl habitat, staging areas
- identification of breeding habitats within the area of potential influence (note especially sensitive species)
- identities of important species and reproductive habitat requirements
- migration
- population dynamics
- carrying capacity
- communities
- other

(iv) Rare or Endangered Species

(a) - potential for effect
  - short term, long term
- displacement of habitat
- ability of species to adjust

(b) - identification of rare and endangered species (plant or animal) as defined by any public agency
- note habitat, breeding area, range, feeding area and food
- ability to adapt

5. EXISTING LAND USE

(i) Planning (Stated and Implied)

(a) - impact on and relationship to:
  - Provincial Government plans
  - regional plans
  - native community plans
  - watershed plans
  - other

(b) - provincial ministry plans and programs
- regional and special commission plans
- federal lands and reserves and federal treaties rights on lands
- rights on lands
- watershed plans

(ii) Non-Agricultural

(a) - effects on, or limitations to resource mining
- changes to recreational patterns
- near and far-field effects on forestry due to air contaminants
- changes in urban land use patterns

(b) - all existing land use within area of potential effect
- mineral resources such as:
  - potential oil and gas pools
  - existing and potential pits and quarries
  - other known mineral deposits
- forest resources

6. SOCIAL AND CULTURAL AND ECONOMIC

Recognizing the differences between various peoples in the North, the proposed development should be assessed as to its effects on different cultures. Different methods may be necessary to identify and evaluate the concerns these groups may have with the project. One set of criteria that may be used to help in this assessment may include the following items:

(i) Health and Safety

(a) - effect under normal conditions
- increase over ambient
- consider air, water, land releases
- safety measures to minimize

(b) - federal criteria
- provincial criteria

(ii) Communities

(a) - updated demographic income distribution forecast
- effects on population distribution
- alteration of labour forces
- effects on local industries, government (Native, non-Native)
- community impacts of project - primary and secondary
  - housing demand projections and current availability
  - education
  - servicing adequacy to meet present and projected demands
  - transportation (e.g. commuting from workplace to home)
- financing programs for increased community servicing
- public participation

(b)
- population distribution
- labour force availability
- important industrial areas
- housing availability
- servicing availability - limits
- existing wage structures
- transportation

Communities (Native Peoples - including Status and Non-Status Indians, Metis)

- cultural ecology
  - identification of residence patterns of Native peoples in the study area (bands, reserves, towns, traditional groupings, etc.)
  - identify patterns of livelihood:
    - native peoples participation in the wage economy
    - native peoples participation in traditional economic activities
      - hunting)
      - trapping) - for self-consumption
      - fishing)
      - gardening) - monetary value (income)
      - other)
- relationships with natural environment
- identification of Government involvement in Native communities
  - services
  - economic support
- Native people's plans and aspirations in the context of the proposed development
- identification of sites, landscape features of cultural significance to Native people in study area
- effects of undertaking on the cultural ecology of the Native peoples
  - e.g. - effects on current lifestyles
    - effects on local environment
    - effects on employment (unemployment)
- an outline of the proposed Company employment and training program for Native peoples

(iii) Historic Sites

(a)
- human heritage resources - identified potential effects of the pre-construction and operation phase of the project on the heritage resources identified in the inventory.

(b)
- human resources heritage or cultural landscape areas
- the application with existing or potential archaeological historical and/or architectural resources that may be affected
- statement of the significance of the resources

(iv) Economic

- direct benefits and costs of the project to the proponent, local residents, government and government agencies

- individual benefits and costs of the project to the above mentioned.

7. NOISE

- allowable criteria
- potential from plant
- upset conditions

MITIGATION

This should relate the Inventory and Effect Prediction of the preferred alternative to the project description. The purpose being, designing to minimize all detrimental effects during construction and operation both on-site and off-site. This will mean some trade-offs by the proponents and should consider both on-site and off-site impacts. The following list does not preclude the addition of subsequent details which the foregoing studies have recognized.

ON-SITE

Construction

- site preparation/improvement
- construction grading
- construction camp
- storage of materials
- site boundary effects
- education of personnel
- restoration/rehabilitation
- large scale utilization of local work forces

Operation

- waste emissions, i.e. pump water and runoff disposal
- dust control
- fuel storage
- product transportation
- maintenance
- noise
- training of local residents
- protection of employees
- control of negative interaction between labour force and local communities.

RESTORATION

Considerable concern has been expressed over the rehabilitation of the spoil piles and ponds which strip mining creates. In the case of Onakawana, the question does not appear to be whether or not the area can be restored since preliminary work shows that the spoils piles are not likely to be toxic - rather, the question is the cost of restoration. Are the costs of restoration such that the whole operation remains viable?

It has been stated by the proponent and government officials that the restored area could be left more productive than it is now. The restoration plan should contain a proposed land use; how that land use is to be achieved through restoration and re-vegetation. Studies should be carried out to verify that the proposed land use is both feasible and practicable. Suggestions which have come forth range from agriculture to forestry to recreational hunting. The alternative land uses should be discussed and the potential benefits and costs of each determined.

It will no doubt be necessary to level out the spoil banks to a point where both gully and sheet erosion are minimized and vegetation can rapidly take hold. Studies should be carried out to determine the necessary slope angles and what must be done to the slope surface to make rapid revegetation possible.

Along with the spoil piles, other waste disposal areas will have to be restored. This includes construction of waste disposal areas, ash lagoons, solid waste of liquid disposal areas and sanitary waste disposal areas.

The degree of restoration required and which can be feasibly carried out will have to be determined. The minimum restoration required is the stabilization of the spoil piles through revegetation and the prevention of the deterioration of water quality in the Abitibi, Mattagami or Onakawana Rivers. The area will have to be left aesthetically pleasing rather than as a potential eye sore.

APPENDIX F

SUMMARY OF THE CITIZENS' COMMITTEE MEETINGS FOR THE ONAKAWANA TRANSMISSION ROUTE

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
Timmins **March 6, 1980** **Committee** Education interests 1 Environmental interests 4 Forestry interests 4 Independents 1 Mining interests 4 MNR 1 Municipal organizations 5 Municipalities 4 Native interests 2 Political interests - Tourism interests 2 Transportation interests 1 29 Ontario Hydro 4 RCNE 1	Background Information Function of the committee	Requested future meetings to be in alternate locations Travel expenses to be paid but not compensation for lost wages	
Timmins **March 29, 1980** **Committee** Education interests 1 Environmental interests 1 Forestry interests 2 Independents 2 Mining interests 1 MNR 4 Municipal organizations 5 Municipalities 4 Native interests 1 Political interests 1 Tourism interests 1 Transportation interests 1 24	Overview of 500 kV transmission line construction and associated activities Description of transmission line power loss Subcommittees established: settlement and leisure; industrial; biological Review of environmental and land-use data	Need maps showing primary, secondary and tertiary roads; areas with good natural forest regeneration; areas of mineral potential; designated land use derived from official plans of Timmins, Sudbury and Smooth Rock Falls	Possibility of tapping off from a 500 kV transmission line New linear severances may lead to increased poaching of fur bearers. Effects of herbicide spraying on non-target plants and animals Effects of siltation on stream water quality,

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
March 29/80 Continued			
Ontario Hydro 7 RCNE -			aquatic organisms, fish spawning grounds and plant succession Effects on wildlife of environmental disruption and loss of historic feeding areas Effects of environmental change on prey organisms in streams. Fish species taking several years to reach maturity are more sensitive to environmental disturbance then those maturing early. Cold water fish species more sensitive to changes in water quality than warm water species Sport fishermen prefer lake to stream fishing Townsites and Indian reserves differ in density of development and administrative structure

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
March 29/80 Continued			Viewsheds of townsites and reserves need consideration Existing ROW's should be paralleled Existing transmission line should be twinned to locate new facilities Multiple-circuit towers should be used in urban areas Incorporate new and existing facilities onto one tower wherever possible Avoid high-cost land within urban areas when locating new ROW's Highways and railways should not be paralleled. Visual character important to tourism Effect of noise on enjoyment of canoe routes Effect of transmission lines near lakes on aircraft access

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
Timmins May 10, 1980				
Committee		Answers to questions from prior meetings a. explanation of separation distance between two-rights-of-way (ROW's) b. history of line outages 1969-1979 c. percentage of Crown land in study area d. OH policy not to use 2,4,5T	Hold future meetings closer to Onakawana site Requested information on mine and generating station	Effect of induced current from EHV conductors in urban setting Role of ROW's and access roads in fire protection Polar Bear Express economically significant to area Commercial outpost camps represent significant investment on part of operator Transmission lines could prove hazardous to operation of fly-in camps Timber cleared from ROW's and access roads should be salvaged Access roads could aid mineral exploration Prospecting would be facilitated by exposure of bedrock during construction Effect of construction work on geochemical environment and on geochemical techniques
Education interests	1			
Environmental interests	-			
Forestry interests	2			
Independents	2			
Mining interests	1			
MNR	3			
Municipal organizations	2			
Municipalities	6			
Native interests	-			
Political interests	-			
Tourism interests	1			
Transportation interests	1			
	19			
Ontario Hydro	6			
RCNE	1			
		Review and revision of draft environmental objective statements		
		Outline of possible remedial measures associated with 500 kV transmission line construction		

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
			Effect of live conductors and electromagnetic interference on geophysical surveys Effect of towers and conductors on aircraft Effect of towers and conductors on access ground work crews in mineral exploration Identification of ore deposits located under transmission lines may require lines to be moved

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
Timmins June 13-14, 1980				
Committee		Review and finalization of draft environmental objective statements Subcommittee ranking of objectives within nine environmental factors		
Education interests	1			
Environmental interests	-			
Forestry interests	2			
Independents	1			
Mining interests	-			
MNR	3			
Municipal organizations	2			
Municipalities	5			
Native interests	1			
Political interests	-			
Tourism interests	-			
Transportation interests	1			
	16			
Ontario Hydro	6			
RCNE	3			
Timmins Sept. 5, 1980				
Committee		Update of project environmental and technical studies Review of ranking of objectives within factors	Requested copies of municipal liaison committee material Native people in Moosonee area have expressed opposition to the project	Sulphur emissions from Onakawana GS Is OH committed to buying coal from ODL Are coal deposits sufficient to fuel the GS
Education interests	1			
Environmental interests	1			
Forestry interests	-			
Independents	3			
Mining interests	1			
MNR	1			
Municipal organizations	2			
Municipalities	8			
Native interests	-			
Political interests	-			
Tourism interests	-			
Transportation interests	2			
	19			
Ontario Hydro	6			
RCNE	-			

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
Timmins Oct 3-4, 1980				
Committee		Overall ranking of environmental objectives		
Education interests	1			
Environmental interests	1			
Forestry interests	1			
Independents	2	Route identification subcommittee selected		
Mining interests	1			
MNR	2			
Municipal organizations	-			
Municipalities	7			
Native interests	1			
Political interests	-			
Tourism interests	-			
Transportation interests	2			
	18			
Ontario Hydro	6			
RCNE	-			
Sudbury Nov. 28-29, 1980				
Route Identification Subcommittee				
Settlement and Leisure subcommittee	2	Identification of alternative transmission line routes		
Industrial subcommittee	1			
Biological subcommittee	1			
Ontario Hydro	3			
	7			

Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
Timmins Dec. 5, 1980 Route Identification Subcommittee Settlement and Leisure subcommittee Industrial subcommittee Ontario Hydro	 2 1 3 6	Review of transfer of route alternatives to 1:50,000 scale map		
Timmins Dec. 6, 1980 Committee Education interests Environmental interests Forestry interests Independents Mining interests MNR Municipal organizations Municipalities Native interests Political interests Tourism interests Transportation interests Ontario Hydro RCNE	 1 - 2 1 - 1 2 4 1 - - 2 14 3 2	Full committee review of route alternatives Description of evaluation process to be undertaken for alternative routes	Committee members not relaying information to parent groups Municipal representation low at meetings and information centres Cochrane and Timmins not sending representatives Could strong municipal objections overturn the committee's choice of preferred route	
Feb. 28, 1981 Timmins Committee Education interests Environmental interests	 1 1	Overview of discussions with provincial and municipal officials re		

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
Feb. 28, 1981 Continued				
Forestry interests	1	potential impact of alternative routes		
Independents	2			
Mining interests	1			
MNR	1	Review of comparison of alternative routes		
Municipal organizations	2			
Municipalities	5			
Native interests	-	Finalization of leading alternative routes		
Political interests	-			
Tourism interests	-			
Transportation interests	2			
	16			
Ontario Hydro	6			
RCNE	2			
April 10-11, 1981 Timmins				
Committee		Presentation of preferences for preferred route	Committee's choice is not negotiable	
Education interests	1			
Environmental interests	-			
Forestry interests	1		OH should simplify information	
Independents	2	Selection of committee's preferred route, N4-C2-S4		
Mining interests	1		Trip to the site	
MNR	-			
Municipal organizations	1			
Municipalities	3	Presentation of OH's preferred route, N7-C2-S4	Citizens' committee and MLC should hold some meetings together	
Native interests	-			
Political interests	-			
Tourism interests	-			
Transportation interests	1		Committees should be allowed, earlier in the process, to have discussions without OH personnel present but available for clarification or explanation	
	10			
Ontario Hydro	6			
RCNE	2			

Source: Ontario Hydro, Onakawana Transmission Route Planning Study, Notes of Citizens' Committee Meetings. #1 - #9 March 6, 1980 - April 11, 1981.
Royal Commission on the Northern Environment, Notes of Citizens' Committee Meetings, March 6, 1980 to April 11, 1980.

APPENDIX G
SUMMARY OF THE SOUTHERN MUNICIPAL LIAISON COMMITTEE MEETINGS

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
Smooth Rock Falls **April 22, 1980** **Committee** Municipalities 9 Native interests 2 Forestry interests 1 Labour interests 1 Mining interests 1 Provincial govt. 1 15 Ontario Hydro 2 Public 9 Media 3 RCNE 1	Background information Role and scope of committee	Public participation with ODL Summary of meetings to be circulated Minutes of NMLC and SMLC to be exchanged Request for presentation re wood waste pelletizing and burning Difference between a citizens' committee and a liaison committee Travel expenses to be paid but not compensation for lost wages	Road to the site Alternate location to allow for wood waste as fuel Peat and garbage as alternative fuel sources Boiler design to accommodate wood waste as fuel Community and social effects after termination of project Employment Regional and local power needs Scrubbers to reduce emissions
Smooth Rock Falls **May 20, 1980** **Committee** Municipalities 7 Native interests 3 Provincial govt. 2 Education interests 1 Forestry interests 1 Labour interests 1 Tourism interests 1 16	Presentation and discussion of the electrical system in the northeastern region Presentation and discussion of OH plans for the hydraulic program in northern Ontario	Local chairman elected	Cost comparison of Onakawana GS and hydraulic generation Self-sufficiency of northeastern region power generation Optimistic forecast need

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
May 20, 1980 Continued Ontario Hydro 3 Public 4 Media 1 RCNE 1			Scrubbers to reduce emissions Use of local labour force Training of work force
Smooth Rock Falls June 17, 1980 Committee Municipalities 8 Native interests 2 Forestry interests 2 Labour interests 1 Mining interests 1 Provincial govt. 1 15 Ontario Hydro 7 Public 4 Media 3 RCNE 3 ODL 1	Presentation of social impact assessment process, social baseline inventory, and workforce estimates Presentation of environmental studies under way Presentation re: wood waste as fuel; plant location; air pollution control Cost comparisons between hydraulic, coal and nuclear generation	Studies not circulated except at request	Road to the site Effect on social services with influx of workers Effect on health services with influx of workers Boiler design to accommodate garbage, wood waste and lignite as fuel Academic upgrading Role of unions in labour force SO_2 and NO_x emissions
Smooth Rock Falls Nov. 18, 1980 Committee Municipalities 5 Labour interests 1 Mining interests 1 Tourism interests 1 8	Presentation on findings of environmental studies Summary of acid rain studies		Acid precipitation Lower stacks Effect on canoe routes

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
Nov. 18, 1980 Continued Ontario Hydro 4 Public 3 Media 0 RCNE 1			Area minerals as potential for secondary industry Effects of releasing water from the cooling pond to the Abitibi
Smooth Rock Falls Feb. 17, 1981 Committee Municipalities 5 Native interests 2 Provincial govt. 2 Labour interests 1 Mining interests 1 11 Ontario Hydro 4 RCNE 1	Presentation of social impact assessment preliminary results	News coverage for NMLC Combined meeting of NMLC and SMLC Native people singled out as special case Need more comment on native lifestyle Many in Moosonee and Moose Factory are concerned but either don't speak English or are not on NMLC Some NMLC members don't reflect wishes of community	Effects on social, health and police services; rail upgrading; tourism increase Combination of effects with Onakawana and Detour Lake mine Agricultural land held by non-farmers Scrubbers Use of SO_2 from plant as by-product for fertilizer manufacture Job-training for skilled workers Good wages for low-level jobs in area do not encourage young to seek skills

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
Feb. 17, 1971 Continued			Influx of natives from coast to Moosonee Effect on development of area minerals: niobium, silica sands, silver

Source: Ontario Hydro. Onakawana Generation Planning Study. Notes of Southern Municipal Liaison Committee Meetings #1 - #5. April 22, 1980 - February 17, 1981.

Royal Commission on the Northern Environment. Notes of Municipal Liaison Committee Meetings, April 22, 1980 to March 25, 1981.

APPENDIX H

SUMMARY OF THE NORTHERN MUNICIPAL LIAISON COMMITTEE MEETINGS

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
Moosonee **April 23, 1980** **Committee** Provincial govt. 3 Metis organizations 2 Education interests 1 Federal govt. 1 Municipality 1 8 Ontario Hydro 2 Public 0 Media 0 RCNE 1	Background information Role and scope of committee	Original wording (Onakawana Liaison Committee) made committee sound like ODL committee Travel expenses to be paid but not compensation for lost wages Notes of meetings to be exchanged with SMLC Media to be invited Local chairman elected Public to be allowed to ask questions at end of meeting ODL public participation	Need for area development Need for employment opportunities Transmission lines a potential hazard to geese and airplanes Power to Moose River Crossing Power to coastal reserves Road to Moose River Crossing
Moosonee **May 21, 1980** **Committee** Education interests 3 Provincial govt. 3 Metis organizations 1 Moose Band 1 Municipality 1 Tourism interests 1 10	Presentation and discussion of electrical system in northeastern region OH plans for hydraulic program in northern Ontario	Moose River Crossing representative declined to attend meetings; substitute invited Meetings to alternate between Moosonee and Moose Factory	Effect of unionization on employment

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
May 21, 1980 Continued				
Ontario Hydro	3			
Public	0			
Media	0			
RCNE	1			
Moose Factory June 18, 1980				
Committee		Presentation of social impact assessment process; social baseline inventory; workforce estimates	Lack of media coverage Public to ask questions throughout meetings Agenda set by OH without committee input Agenda does not allow for Other Business Information presented too technical and voluminous Ten years should be allowed to discuss project Moose River Crossing not represented Meeting should be held in Moose River Crossing Committee should be telling OH what the development process should be Join SMLC Remain distinct from SMLC	Need for local business to have opportunity to compete for contracts Training of local people to qualify for skilled jobs Metis and non-status Indians oppose project Metis and non-status Indians oppose road to site Jobs to local workers Community benefit Enviromental effects Effect of unionization on employment Effect on Moose River Crossing
Education interests	2			
Metis organizations	2			
Provincial govt.	2			
Moose Band	1			
Tourism interests	1			
	8			
Ontario Hydro	6			
Public	11			
Media	0			
RCNE	1			
ODL	1			

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
June 18, 1980 Continued			OMNSIA representative resigned because language too technical People need education to understand large development	
Moosonee September 24, 1980				
Committee		Presentation by each member as to how he and his parent group viewed the effects of the project	EAA written by people of southern Ontario Concerns of native people must be considered NMLC media coverage should be equal to SMLC Technical terms cannot be translated into Cree	Job training for local residents Priority for available jobs to local workforce If road is built, construction should begin at Moosonee Government has an obligation for job training Protect environment Effect of SO_2 emissions on air, land and rivers emptying into James Bay Need to ensure Indian acceptance into unions Influx from coastal reserves putting pressure on schools, health services, housing Possible increase in crime and danger to women
Education interests	3			
Metis organizations	1			
Moose Band	1			
Municipality	1			
Provincial govt.	1			
Tourism interests	1			
	8			
Ontario Hydro	1			
Public	0			
Media	0			
RCNE	1			
Treaty #9	1			

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
September 24, 1980 Continued			Reclamation should leave land safe and useful Assess levy against project to benefit community Adaptation to wage employment and sudden increase in income Decision-making
November 19, 1980 Moosonee (unable to cross to Moose Factory) Committee Education interests 2 Moose Band 2 Metis organizations 1 Tourism interests 1 6 Ontario Hydro 2 Public 4 Media 0 RCNE 1	Presentation of findings of environmental studies Summary of acid rain studies		Diversion of Onakawana River Effect of stacks and tall buildings on geese Effect on sandhill cranes How will OH minimize SO_2 emissions How will OH minimize CO_2 emissions Effect of pollutants on coastal communities

Location, Date, Attendance		Subject Matter	Issues Raised re Process	Issues Raised re Project
March 25, 1981 Moose Factory				
Committee		Presentation of social impact assessment preliminary results	Notes of Feb 17/81 SMLC meeting not disseminated	Native people, even when skilled, have difficulty entering unions
Metis organizations	3		Notes of meeting biased and vague, do not reflect native viewpoint	Moosonee, Moose Factory and Moose River Crossing not included in estimated distribution of new households
Education interests	1		Cultural background of native people has not been acknowledged	Prices for food and housing rise with large development
Moose Band	1	Resignation of native members	Views of native members not seriously acknowledged	How will building lots in Moosonee be made available if there is a population influx
Municipality	1		Questions of native members received inadequate response	Transient workers could displace regular clientele of goose camps
Tourism interests	1		Lack of respect shown to native members	600' stack emitting pollutants will affect geese and game birds
	7		Reports tabled with summaries prepared by OH without opportunity for members to assess beforehand	Southern communities affected by development receive aid; northern communities receive little
Ontario Hydro	2		Native members manipulated as tokens to rubber-stamp decisions already taken	
Public	5		Charts and graphs difficult to translate into Cree	
Media	0		No representatives from coastal communities	

Location, Date, Attendance	Subject Matter	Issues Raised re Process	Issues Raised re Project
March 25, 1981 Continued		Native people lack educational background to understand graphs and charts Members hold down full-time jobs and have no time for translation Committee does not represent the native viewpoint Native concerns not addressed so native members chose to use political route via Treaty #9 Labour force estimates are bad Data re labour force are outdated	Workers in the community will require higher wages if they are not to be drawn to the project Road should be built from Moosonee and work south Prospects for employment when resource is depleted and project terminated

Source: Ontario Hydro. Onakawana Generation Planning Study. Notes of Northern Municipal Liaison Committee Meetings #1 - #6. April 23, 1980 - March 25, 1981.

Royal Commission on the Northern Environment. Notes of Municipal Liaison Committee Meetings, April 22, 1980 to March 25, 1981.

APPENDIX I
ONTARIO HYDRO INFORMATION CENTRES FOR THE ONAKAWANA PROJECT

Date	Location	Purpose
January 14-15, 1980	Timmins	To introduce the study components
17	Sudbury	
22	Cochrane	To provide for public comment and input
28-29	Kapuskasing	
31	Moose Factory	
February 1	Moosonee	To identify members of the public as participants
November 24-25, 1980	Timmins	To enable the public to examine the data gathered to date
26	Kapuskasing	
27-28	Smooth Rock Falls	
December 1-2	Cochrane	
3	Moose Factory	To discuss the issues and concerns that surfaced
4-5	Moosonee	
March 23, 1981	Sudbury	To enable the public to examine the alternative transmission line route
25	Timmins	
26	Cochrane	

APPENDIX J
ANNUAL AVERAGE MANPOWER REQUIREMENTS FOR THE ONAKAWANA PROJECT

Facility	1983	1984	1985	1986	1987	1988	1989	1990	2020
A. Construction									
Mine	-	95	45	40	50	40	-	-	-
Gen. Station	50	165	470	885	1095	685	210	60	-
Camp Staff	10	40	100	130	175	110	40	10	-
Transmission	40	65	155	335	380	335	150	-	-
Subtotal	100	365	770	1390	1700	1160	400	70	-
B. Operation									
Mine	-	30	50	65	120	185	235	245	145
Gen. Station	-	-	-	35	100	175	255	255	245
Camp Operation	-	-	-	20	40	45	50	50	50
Subtotal	-	30	50	120	260	405	540	550	440
ANNUAL TOTAL	100	395	825	1510	1960	1565	940	620	440

Source: Onakawana Development Ltd. and Ontario Hydro. Draft Onakawana Project Environmental Assessment. August 5, 1981. p. 136.

APPENDIX K
ESTIMATED LOCAL EMPLOYMENT OPPORTUNITIES FOR COCHRANE DISTRICT

CONSTRUCTION PHASE (yrs. 1-7)

	Native	Non-Native	Total Local	Local % of Total Jobs
Mine	5-10	28-33	38	40%
Generating Station	100-125	305-330	430	30%
Support Camp	75-100	50-75	150	70%
TOTAL	180-235	383-438	618	35%

ESTIMATED LOCAL EMPLOYMENT OPPORTUNITIES FOR COCHRANE DISTRICT

OPERATIONS PHASE (yrs. 2- n)

	Native	Non-Native	Total Local	Local % of Total Jobs
Mine	60-70	45-55	115	45%
Generating Station	40-50	35-45	85	35%
Support Camp	30-40	4-14	44	90%
TOTAL	130-160	84-114	244	45%

Source: Ontario Hydro. Onakawana Social Impact Assessment Preliminary Results. February 17, 1981.

APPENDIX L
ESTIMATED PEAK NUMBER OF WORKERS REQUIRED FOR THE ONAKAWANA PROJECT
- GENERATING STATION CONSTRUCTION -

Tradesmen	Estimated Peak Number Required
Boilermakers	140
Bricklayers	5
Cement Masons	5
Carpenters & Millwrights	155
Electricians	155
Insulators	25
Ironworkers and Rodmen	95
Labourers	160
Operators, Mechanics Machinists and Firemen	120
Pipefitters	295
Sheetmetal Workers	25
Teamsters	45
Painters and Glaziers	15
TOTAL	1240

Staff	
Field Management	5
General Superintendent	45
Resident Engineer	80
Plan and Control	20
Material Control	30
Accountant	30
Accident Prevention	5
Personnel	10
Security	15
Public Relations	5
TOTAL	245

- GENERATING STATION OPERATION -

Administration	Estimated Peak Number Required
Station and Production Managers	2
Office Management	3
Steno and Typist	6
Security Guards	2
Supply/Storekeepers	9
Planning Officer	1
TOTAL	23
Operations	
Shift Superintendents	6
Turbine Boiler Operators	10
Assistant Turbine Boilers	15
Auxiliary Plant Operators	30
Fuel/Ash Supervisor	4
Mobile Equipment Operators	6
Coal Plant Attendants	8
Work Equipment Mechanics and Handymen	6
TOTAL	85
Maintenance	
Mechanical Supervisor/Foremen	8
Mechanical Maintenance	34
Electrical and Instrumentation Supervisor/Foremen	7
Electrical and Instrumentation Maintainers	25
Service Maintenance Supervisor/Foremen	5
Shift Servicemen and Handymen	42
TOTAL	121
Chemical	
Chemical Superintendent/Supervisor	3
Technicians	5
TOTAL	8
Technical	
Technical Superintendent/Supervisor	5
Technicians	3
TOTAL	8

- MINING PREPARATION, CONTRACTOR'S EMPLOYEES -

Classification	Estimated Peak Number Required
Carpenters	45
Concreters	45
Welders	27
Heavy Equipment Operators	29
Riggers	17
Mechanics	21
Millwrights	15
Electricians	10
Painters	4
Pipefitters	10
Masons	8
Drillers and Helpers	6
Labourers	10

- MINING, ODL EMPLOYEES -

Operators	Estimated Peak Number Required
Shovel, Dragline, Crane Operators	6
Shovel, Dragline, Crane Oiler	6
Dozer Operator	16
Grader Operator	4
Scraper Operator	6
Front End Loader and Backhoe Operator	7
Haulage Truck Driver	2
Dump Truck Driver	6
Pumpmen	4
Driller	4
Driller's Helper	4
Blaster	1
Labourer	16
TOTAL	82
Maintenance	
Servicemen	4
Welders and Apprentices	4
Machinist	2
Diesel Mechanics and Apprentices	6
Field Mechanics and Apprentices	4
Electricians and Apprentices	2
Wash Bay Attendant	2
Auto Mechanics and Apprentices	2
TOTAL	26
Administrators	
Mine Manager, Assistant Manager	2
Mine Mint. and Purch. Warehouse Supervisor	3
Office Manager	1
Chief Electrician	1
Pit Foremen	9
Drainage and Utility Foreman	1
Electrical Foreman	2
Shop Foreman	4
Field Maintenance Foreman	2
Mine Engineer	1
Environmentalists	2
Surveyor/Technologist	2

- MINING, ODL EMPLOYEES

Operators	Estimated Peak Number Required
Administrators Cont'd	
Mining Technician	1
Agents, Warehouse and Purchasing	4
Tool Crib/First Aid Attendant	4
Cochrane Expeditor	1
Clerks	2
Office Supervisor	2
Payroll and Clerk Typist	4
Janitor	2
Personnel Manager	1
Training Supervisor	1
Safety Supervisor	1
Personnel Typist/Clerk	1
TOTAL	55

Source: Ontario Hydro. Onakawana Proposed Lignite Mine and Generating Station, Draft Social Impact Assessment. October 1981.

APPENDIX M

DESIRED ENTRY LEVEL REQUIREMENTS FOR WORKERS AT THE ONAKAWANA PROJECT

- Generating Station Operation -

Job Title	Minimum Educational Requirement	Minimum Relevant Experience	Internal Training Program Required
Station Manager	Univ. Level	15-20 years	Yes
Production Manager	Univ. Level	15-20 years	Yes
Station Personnel Officer	Univ. Level	6 years	Yes
Training Officer	Univ. Level	8 years	Yes
Business Administrator	Univ. Level	10 years	Yes
Station Accountant	XII Plus	6 years	Yes
Secretary	XII	3 years	
Clerk-Typist	XI	6 months	
Receptionist-Typist	XI	6 months	
Payroll and Personnel Records Clerk	XI	2 years	
Clerk	XI	3 years	
Security Guard			
Supply Supervisor			
Shift Stockeeper	XII		
Shift Stores Attendant	X		
Stores Clerk	XI	3 years	
Shift Handyman	X		
Planning Officer	Univ. Level	8 years	Yes
Operating Superintendent	XII	10 years	Yes
Shift Superintendent	XII	10 years	Yes
Turbine-Boiler Operator	XII	6 years	Yes

- Generating Station Operation -

Job Title	Minimum Educational Requirement	Minimum Relevant Experience	Internal Training Program Required
Assistant Turbine-Boiler Operator	XII	3 years	Yes
Auxiliary Plant Operator	XII	18 months	Yes
Auxiliary Plant Operators-In-Training	XII		Yes
Fuel, Ash and Site Supervisor	XII	7 years	No
Coal Plant Mobile Equipment Operator	X	2 years	No
Coal Plant Attendant	X	3 years	No
Shift Transport and Work Equipment Mechanic	X	2 years	
Shift Handyman	X	2 years	
Superintendent-Mechanical Maintenance	Univ. Level	10 years	Yes
Supervisor-Mechanical Maintenance	Univ. Level	8 years	Yes
Assistant Supervisor	XII or Univ. Level	6 years	Yes
Shift Mechanical Maintenance Foreman	XII	8 years	Yes
Shift Mechanical Maintainer	XII	5 years	Yes
Shift Mechanical Maintainer II	XII	3 years	2 years
Shift Mechanical Maintainer Trainee	XII		4 years
Superintendent-Electrical and Instrumentation Maintenance	Univ. Level	10 years	Yes

- Generating Station Operation -

Job Title	Minimum Educational Requirement	Minimum Relevant Experience	Internal Training Program Required
Supervisor - Electrical and Instrumentation Maintenance	Univ. Level	8 years	Yes
Assistant Supervisor	XII or Univ. Level	6 years	Yes
Shift Electrical and Instrumentation Maintenance Foreman	XII	8 years	Yes
Shift Electrical and Instrumentation Maintainer I	XII	5 years	Yes
Shift Electrical and Instrumentation Maintainer II	XII	3 years	2 years
Shift Electrical and Instrumentation Maintainer Trainee	XII		4 years
Shift Production Technician	XII Plus	6 years	Yes
Superintendent-Technical	Univ. Level	10 years	Yes
Supervisor-Technical	Univ. Level	8 years	Yes
Assistant Supervisor	Univ. Level	6 years	Yes
Thermal Station Technician	XII Plus	6 years	Yes
Superintendent-Chemical, Fuels, and Environment	Univ. Level	10 years	Yes
Assistant Supervisor	Univ. Level	5 years	Yes
Shift Production Technician	XII Plus	2 years	Yes

- Generating Station Operation -

Job Title	Minimum Educational Requirement	Minimum Relevant Experience	Internal Training Program Required
Service Maintainer Foreman	XII	6 years	
Shift Handyman Crew Foreman	X	4 years	
Shift Serviceman	X	2 years	
Shift Handyman	X	2 years	

- Mine -

Job Title	Desired Minimum Education	Desired Minimum Experience	Training Program Required
Staff			
Mine Manager	Univ. Level	15-20 years	
Asst. Mine Manager	Univ. Level	10-15 years	
Mine Superintendent	Univ. Level	10 years	
General Foreman	XII	8 years	
Senior Pit Foreman	X	6 years	
Junior Pit Foreman	X	4 years	
Drain and Utility Foreman	X	4 years	
Maintenance Superintendent	Univ. Level	10 years	
Chief Electrician	XII	8 years	
Electrical Foreman	X	6 years	
Shop Foreman	X	6 years	
Field Maintenance Foreman	X	6 years	
Purchasing/Warehousing Superintendent	XII	10 years	
Warehouse Supervisor	X	8 years	
Tool Crib/First Aid Attendant	X	First Aid	
Purchasing Agent	XII	8 years	
Clerk	X	-	
Cochrane Expeditor	X	-	
Office Manager	Univ. Level	10 years	
Office Supervisor	Univ. Level	5 years	
Payroll Clerk	X	-	
Typist/Clerk	X	-	
Office Janitor	-	-	
Chief Engineer	Univ. Level	8 years	
Mining Engineer	Univ. Level	-	
Mining Technician	Univ. Level	-	
Mining Technician	Tech. Diploma	-	
Environmentalist	Univ. Level	-	
Environmental Technician	XII plus	-	
Surveyor/Technologist	XII plus	-	
Personnel Manager	XII plus	10 years	
Training Supervisor	XII	8 years	
Safety Supervisor	XII	8 years	
Hourly			
Shovel, Dragline, Crane Operator	VIII	-	yes

- Mine -

Job Title	Desired Minimum Education	Desired Minimum Experience	Training Program Required
Hourly Cont'd			
Shovel, Dragline, Crane Oiler	VIII	-	yes
Dozer Operator	VIII	-	yes
Grader Operator	VIII	-	yes
Scraper Operator	VIII	-	yes
F.E.L. Backhoe Operator	VIII	-	yes
Haulage Truck Driver	VIII	-	yes
Pumpman	-	-	no
Driller	VIII	-	yes
Driller's Helper	VIII	-	no
Blaster	VIII	-	yes
Labourer	-	-	no
Serviceman	VIII	-	no
Welder	X	4 years	no
Apprentice Welder	X	-	yes
Machinist	X	4 years	no
Heavy Duty Mechanic	X	4 years	no
Apprentice H.D. Mechanic	X	-	yes
Electrician	X	4 years	no
Apprentice Electrician	X	-	yes
Wash Bay Attendant	-	-	no
Auto Mechanic	X	4 years	no
Apprentice Auto Mechanic	X	-	yes

Source: Ontario Hydro. Onakawana Proposed Lignite Mine and Generating Station, Draft Social Impact Assessment. October 1981.

APPENDIX N

RECRUITMENT LEAD TIME FOR SKILLED AND PROFESSIONAL JOBS ONAKAWANA GENERATING STATION

Basic Position	Training Position	Minimum Lead Time
Auxiliary Plant Operator	Auxiliary Plant Operator in Training	18 months
Shift Maintainer II	Shift Maintainer Trainee	3 to 4 years
Assistant Supervisor	Graduate Trainee	2 years

Source: Ontario Hydro. Onakawana Proposed Lignite Mine and Generating Station, Draft Social Impact Assessment. October 1981.

APPENDIX O
ONAKAWANA GENERATING STATION CONSTRUCTION TRADES UNION LOCALS

Trade	Union	Probable Union Local Location
Boilermakers	International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers	Local 128 Toronto
Bricklayers	Bricklayers and Masons International Union	Local 25 Thunder Bay
Cement Masons	Operative Plasterers' and Masons' International Association	Local 163 Thunder Bay
Carpenters and Millwrights	United Brotherhood of Carpenters and Joiners of America	Local 1669 Thunder Bay
Electricians	International Brotherhood of Electrical Workers	Local 1788 Toronto
Insulators	International Association of Heat and Frost Insulators and Asbestos Workers	Local 95 Toronto
Ironworkers and Rodmen	International Association of Bridge, Structural and Ornamental Iron Workers	Local 759 Thunder Bay
Operators, Mechanics, Machinists, Firemen	International Union of Operating Engineers	Local 763 Thunder Bay
Pipefitters	United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada	Local 628 Thunder Bay
Sheetmetal Workers	Sheetmetal Workers International Association	Thunder Bay
Teamsters	International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America.	Local 230 (Toronto) for Ont. Hydro Local 990 Thunder Bay for Contractors

ONAKAWANA GENERATING STATION CONSTRUCTION TRADES UNION LOCALS

Trade	Union	Probable Union Local Location
Painters and Glaziers	International Brotherhood of Painters and Allied Trades	Local 1671 Thunder Bay
Laborers	Laborers' International Union of North America	Local 607 Thunder Bay

Source: Ontario Hydro. Onakawana Proposed Lignite Mine and Generating Station, Draft Social Impact Assessment. October 1981.

APPENDIX P
SUMMARY OF ONAKAWANA PHASE II ENVIRONMENTAL STUDIES

Environmental Studies and Results

Air

- On-site weather conditions (winds, temperature, humidity, rainfall, snowfall, etc.) were measured for one year, starting in October 1979.

- Air quality and precipitation chemistry at Onakawana were also monitored for a one-year period.

- Local dispersion conditions were evaluated by measuring winds and temperature up to one mile above ground level.

- Existing levels of potential air pollutants are low and typical of remote areas in Ontario and Canada.

Water

- Water quality was monitored in several rivers and streams near Onakawana including the Abitibi, Onakawana and Mattagami Rivers and Medicine Creek.

- All surface waters generally meet the Provincial objectives for drinking water quality and protection of fish and other aquatic life.

- Samples of river sediments were collected for chemical analysis and to determine the kinds of bottom organisms present. These animals are an important source of food for fish.

- Fish populations were studied in these rivers to determine species present, abundance, movement patterns, spawning areas, etc.

- Sturgeon, pike, walleye, suckers, mooneye and brook trout were the most common fish found.

- A small spawning run of sturgeon was discovered at the mouth of the Onakawana River last spring.

- Brook trout were only found in the Onakawana River.

Land

- Soil, vegetation and forest types have been mapped for the entire study area (2500 square kilometers).

- About 40% of the area is forested, the remainder being muskeg, bog and swamp.

- Best forest growth occurs along river banks where soils are well drained.

- Wildlife surveys were carried out on land and by aircraft during the winter, spring and summer.

- Moose and caribou are not common near the project site.

- Other mammals found in the area include beaver, marten, mink, otter, black bear, timber wolf and red fox.

- Birds recorded near Onakawana include osprey, red-tailed hawk, ruffed grouse, sandhill crane and several kinds of ducks.

- No rare or endangered plant or animal species have been found near Onakawana.

Environmental Protection at Onakawana

The generating station will be designed to ensure all emissions and wastes are treated and disposed of in a manner which will meet regulatory standards and minimize environmental effects.

Air Emissions

- Electrostatic precipitators will remove 99.9% of particulate emissions (fly ash);

- Ash will be sent to the mine for use in reclamation;

- Combustion controls can reduce emissions of sulphur and nitrogen oxides;

- Dust suppression will minimize emissions of coal dust;

- The Onakawana generating station will meet provincial air quality criteria;

- Air quality monitoring will be carried out to ensure standards are met.

Water Emissions

- Intake and discharge structures will be designed to minimize effects on fish and water quality;

- All liquid wastes will be treated to meet Ministry of the Environment approval before discharge to the Abitibi River;

- Temperature effects will be minimized by the use of a closed-cycle cooling system (cooling pond).

Source: Ontario Hydro. Onakawana Generation Planning Study. Notes of Southern Municipal Liaison Committee Meetings. November 18, 1980.

APPENDIX Q
ALTERNATIVE METHODS OF CARRYING OUT THE UNDERTAKING

LIGNITE MINE

Muskeg and Overburden Dewatering

- ditching for drainage using backhoes *
- ditching for drainage using explosives
- installation of subsurface perforated plastic piping

Site Drainage

- collection and settling of all drainage prior to release to existing surface waters *
- isolation of muskeg drainage from site drainage and settling of site drainage prior to release to natural downstream drainage

River Diversion

- two alignment options stated but only one described
- cutoff dam immediately upstream of the cooling pond approximately 3 km northeast of the diversion *
- cutoff dam immediately downstream of the diversion

- channel configuration with bottom widths of 25 m *, 30 m, 35 m and 40 m

- channel gradients of .2%, .1%, .05% and .025% *

- railway bridge with reduced channel width at the bridge to shorten the bridge length *
- railway bridge with full channel cross-section maintained through the bridge crossing

- drop structure of high head, chute type with an entrance overflow weir, stilling basin and transition channel *
- drop structure of vertical shaft and tunnel with a stilling basin and transition channel

- vertical slot fishway *
- dentil fishway
- chute-type fishway
- construction of a fish lock
- haulage of fish by tank truck
- no provision for fish passage

Mining Method

- surface mining *
- underground mining

* Preferred Alternative

Overburden Removal

- draglines *
- bucket wheels
- shovels
- loaders
- scapers

Lignite Excavation

- shovels *
- small draglines
- loaders
- backhoes
- scrapers

Lignite Transportation

- haulage trucks *
- scrapers
- conveyors

Waste Ash Disposal

- disposal in-pit *
- disposal out-of-pit
- marketing and transport for secondary production

Non-Toxic Solid Waste Disposal

- surface landfill adjacent to solid waste resources *
- disposal in-pit

Post-Mining Land Use

- wildlife *
- hunting and trapping *
- sport fishing *
- recreation *
- commercial forestry
- agriculture

Post-Mining Hydrological Regime

- maintain Onakawana River diversion *
- re-establish the Onakawana River by routing it through the mine site to Medicine Creek
- re-establish the Onakawana River by routing it through the mine site and outflowing into the Onakawana River again

* Preferred Alternative

Reclamation Methods

- amend the overburden to improve its growth potential *
- plant directly on levelled spoil

- revegetation in two phases, short term and long term *
- revegetation with grasses and legumes and natural succession to forest stages
- establishment of ultimate vegetation immediately

* Preferred Alternative

GENERATING STATION

Station Location

- between the Ontario Northland Railway and the main lignite field with cooling water supplied from a land-based cooling pond *
- between the Ontario Northland Railway and the Abitibi River with once-through cooling water drawn from the Abitibi River
- north of the mine with once-through cooling water drawn from a headpond associated with a possible hydroelectric development scheme on the Mattagami River
- on the east bank of the Moose River downstream of the Mattagami River with once-through cooling water drawn from the Moose River
- south of the mine closer to established communities

Sulphur Dioxide Control

- lime/limestone slurry wet scrubbing *
- lime spray drying
- furnace injection of limestone

(N.B.: Scrubbers are not included in the design but consideration of alternatives has been given in case they should be necessary.)

Nitrogen Oxide Control

- improved burner technology *
- low flame temperature *
- flue gas recirculation *
- flue gas treatment
- fluidized bed combustion

Cooling Water Supply

- cooling pond *
- cooling towers
- once-through cooling, Abitibi River
- once-through cooling, Mattagami River
- once-through cooling, Moose River

(Once-through cooling, Abitibi River, was not totally discarded; further studies would be necessary should it be chosen.)

Accommodation

- campsite with lodging, catering, recreational and other service facilities *
- permanent townsite not considered an alternative

* Preferred Alternative

Access

- Ontario Northland Railway *
- temporary winter road between Pinard TS and Onakawana * for transmission line construction *
- heloport and airstrip northeast of the project site * for emergency transportation
- road to the site not considered an alternative

* Preferred alternative

TRANSMISSION SYSTEM

Transmission Facilities

Onakawana GS to Pinard TS

- two single-circuit 500 kV alternating current lines *
- high voltage direct current transmission
- two single-circuit 345 kV lines
- two double-circuit 230 kV lines
- three single-circuit 230 kV lines
- one double-circuit 500 kV line
- voltages higher than 500 kV or lower than 320 kV

Pinard TS to Hanmer TS

- two single-circuit 500 kV alternating current lines *
- high voltage direct current transmission
- voltages higher or lower than 500 kV

(one single-circuit 500 kV line is already in existence)

* Preferred alternative

Source: Onakawana Development Ltd. and Ontario Hydro. Draft Onakawana Project Environmental Assessment. August 5, 1981.